Mark®1210cw

User Manual

Your image is our business.

sound-eklin®

a VCA ANTECH company

Mark®1210cw Table of Contents

Mark®1210cw User Manual

Important Safety Information i
Notes i
Warnings i
Cautions i
Specifications iii
Chapter 1: Mark®1210cw System 1
The Mark®1210cw Labels 2
The Mark®1210cw Features 3
The Mark®1210cw Important Part Numbers 4
The Mark®1210cw Key Connections Overview 7
Connecting the Generator 8
Powering Up the Mark®1210cw System 9
Chapter 2: Opening Mark®1210cw Software 10
Chapter 3: Adding Users 11
Chapter 4: Patient Information 13
Searching and Adding Patients 13
Editing an Existing Patient's Information 15
Creating a New Study for an Existing Patient 15
Chapter 5: Creating Radiographs 16
Choosing Anatomy and Positioning 16
Acquiring Radiographs 18
Cropping a Radiograph 20
Chapter 6: Protocols 22
Using Protocols 22
Adding New Protocols 25
Editing Existing Protocols 29
Renaming Protocols 30
Deleting Protocols 31

03212013
Sound-Eklin®

Mark®1210cw Table of Contents

Mark®1210cw User Manual *(continued)*

Chapter 7: Managing Studies 33
Adding New Images to an Existing Study 33
Reviewing a Study 34
Chapter 8: Exporting Images to a Folder 37
Chapter 9: Transferring Studies to the Storage Station 39
Transferring Individual Studies to the Storage Station 41
Transferring DICOM Batch to the Storage Station 42
Confirm Storage of a Study 43
Chapter 10: Adding and Editing a DICOM Location 44
Appendix A: Digital Radiography Technique Charts 47
Adult Equine 47
Juvenile Equine 48
Small Animal 49
Appendix B: Mark®1210cw System Field Replacement Guide 50
Appendix C: Calibration Procedure 54
Appendix D: Assembly Instructions for Rayence 1210cw Handle 55
Appendix E: Wireless Rayence 1210cw Plate Functionality 56
Signal and Battery Strength 57
Appendix F: Technique and Positioning Guide 58
Position Distance 59
Too Large of a Distance 59
Too Small of a Distance 59
Ideal Technique and Distance 60
Appendix G: Technical Support 61
Shipping Address 61
Technical Support 61
Website 61

Important Safety Information

Note

Read all the instructions before connecting or operating the component
Keep this manual so you can refer to these safety instructions.

Warning

There are no user serviceable parts inside.
Refer all servicing to qualified service personnel.

To reduce the risk of fire or electric shock, do not expose the unit to moisture or water. Do not allow foreign objects to get into the enclosure. If the unit is exposed to moisture, or a foreign object gets into the enclosure, immediately disconnect the power cord from the wall. Take the unit to a qualified service person for inspection and necessary repairs.

Caution

Heed all warnings and safety information in these instructions and on the product itself. Follow all operating instructions.

- *Clean the enclosure only with a dry cloth or a vacuum cleaner. Clean the DR plate with a damp cloth. Use no chemicals or alcohol.*
- *Installing 3rd party software is not acceptable*
- *Protective bags, can be used to protect the detector from biological contamination*
- *Avoid pinching fingers in the cases*
- *Do not to place any weight on the detector (use protective tunnel)*

IPXO per IEC 60529

Type B per IEC 60601-1

- *You must allow 10 cm or 4 inches of unobstructed clearance around the unit. Do not place the unit on a bed, sofa, rug, or similar surface that could block the ventilation slots. If the component is placed in a bookcase or cabinet, there must be ventilation of the cabinet to allow proper cooling.*
- *Keep the component away from radiators, heat registers, stoves, or any other appliance that produces heat.*
- *Keep the component away from flammable materials.*
- *The unit must be connected to a power supply only of the type and voltage specified on the side panel of the unit*

Important Safety Information *(continued)*

Connect the component to the power outlet only with the supplied power supply cable or an exact equivalent. Do not modify the supplied cable in any way. Do not attempt to defeat grounding and/or polarization provisions. Do not use extension cords.

Do not route the power cord where it will be crushed, pinched, bent at severe angles, exposed to heat, or damaged in any way. Pay particular attention to the power cord at the plug and where it exits the back of the unit.

The power cord should be unplugged from the wall outlet if the unit is to be left unused for a long period of time. Immediately stop using the component and have it inspected and/or serviced by a qualified service agency if:

- *The power supply cord or plug has been damaged.*
- *Objects have fallen or liquid has been spilled into the unit.*
- *The unit has been exposed to rain.*
- *The unit shows signs of improper operation*
- *The unit has been dropped or damaged in any way*

Place the unit on a fixed, level surface strong enough to support its weight. Do not place it on a moveable cart that could tip over.

System will become unresponsive when exposed to Electrostatic Discharge (ESD) or Electrical Fast Transient (EFT) conditions. This is the normal response to these environmental conditions. Please restart the system to return to normal operation

USB ports are for keyboard and mouse only. User is responsible for evaluating the system with any devices connected to this port for compliance to IEC 60601-1-1.

Ethernet port is not to be used during acquisition. User is responsible for evaluating the system with any devices connected to this port for compliance to IEC60601-1-1.

Disposal

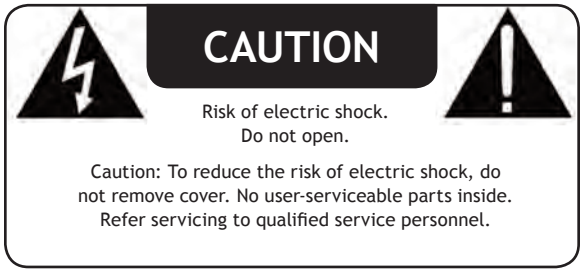
The customer is responsible for the disposal of the medical device. Disposal activities must follow the regulations (especially controlled industrial waste) of the country where the device is used.

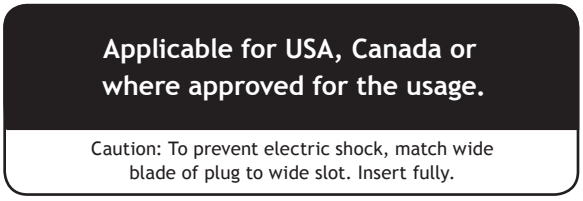
Specifications

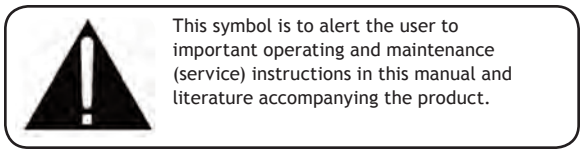
Operation Environment: +15°C to 35°C,
30% to 75% RH, 70 to 106kPa (pressure)

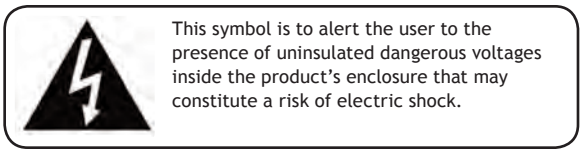
Storage / Transport : -10° C to 55° C, 15% to 80% RH,
70 to 106kPa (pressure)

Power Requirements:
100 - 240 VAC 5.6A 50/60Hz
Weight (net) 41 lbs


CAUTION
Risk of electric shock.
Do not open.
Caution: To reduce the risk of electric shock, do not remove cover. No user-serviceable parts inside. Refer servicing to qualified service personnel.


Applicable for USA, Canada or where approved for the usage.
Caution: To prevent electric shock, match wide blade of plug to wide slot. Insert fully.


This symbol is to alert the user to important operating and maintenance (service) instructions in this manual and literature accompanying the product.


This symbol is to alert the user to the presence of uninsulated dangerous voltages inside the product's enclosure that may constitute a risk of electric shock.

Chapter 1: Mark®1210cw System

The Mark®1210cw system links seamlessly with the X-ray generator to provide the best image quality in a small, lightweight, self-contained system. The Mark®1210cw portable Acquisition Stations are intended to be used by Veterinarians for intermittent mobile diagnostic applications. They will connect the Mark®1210cw device to a Rayence 1210cw Amorphous Silicon Digital X-Ray Detector.

Chapter 1: Mark®1210cw System *(continued)*

The Mark®1210cw Labels

Windows License Key is located on bottom of Electronics Box

Mark®1210cw A-frame Serial Number, CE Markings, and Manufacture Date

Chapter 1: Mark®1210cw System *(continued)*

The Mark®1210cw Features

Power Button with LED Light

Hard Drive Activity Indicator

Chapter 1: Mark®1210cw System *(continued)*

The Mark®1210cw Important Part Numbers

94-879 Mark®1210cw

34-855 Mark®1210cw,
Electronics Box Assembly

34-852 Mark®1210cw,
A-Frame, Assembly, v2

Chapter 1: Mark®1210cw System

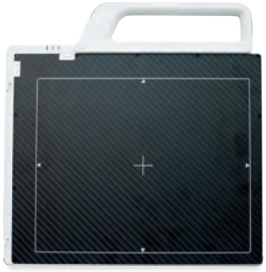
The Mark®1210cw Important Part Numbers *(continued)*

10-867 Min-X-Ray Sync Cable for Mark®1210cw

Syncs the generator's prep and expose cycle with the computer.

90-403 10' Ethernet Patch Cable

Connects the computer to the network to allow for easy image transfers from the Mark®1210cw to PACS.



91-411 Rayence 1210cw Detector

Captures digital radiographs.

30-111 Handle, Rayence 1210cw

Please see Appendix D: Assembly Instructions for the Handle (page 55.)

10-171 Equine 20' IEC-NEMA Power Extension Cord

Connects the Mark®1210cw to any standard U.S. 110V power outlet (Nema 5-15).

Chapter 1: Mark®1210cw System

The Mark®1210cw Important Part Numbers *(continued)*

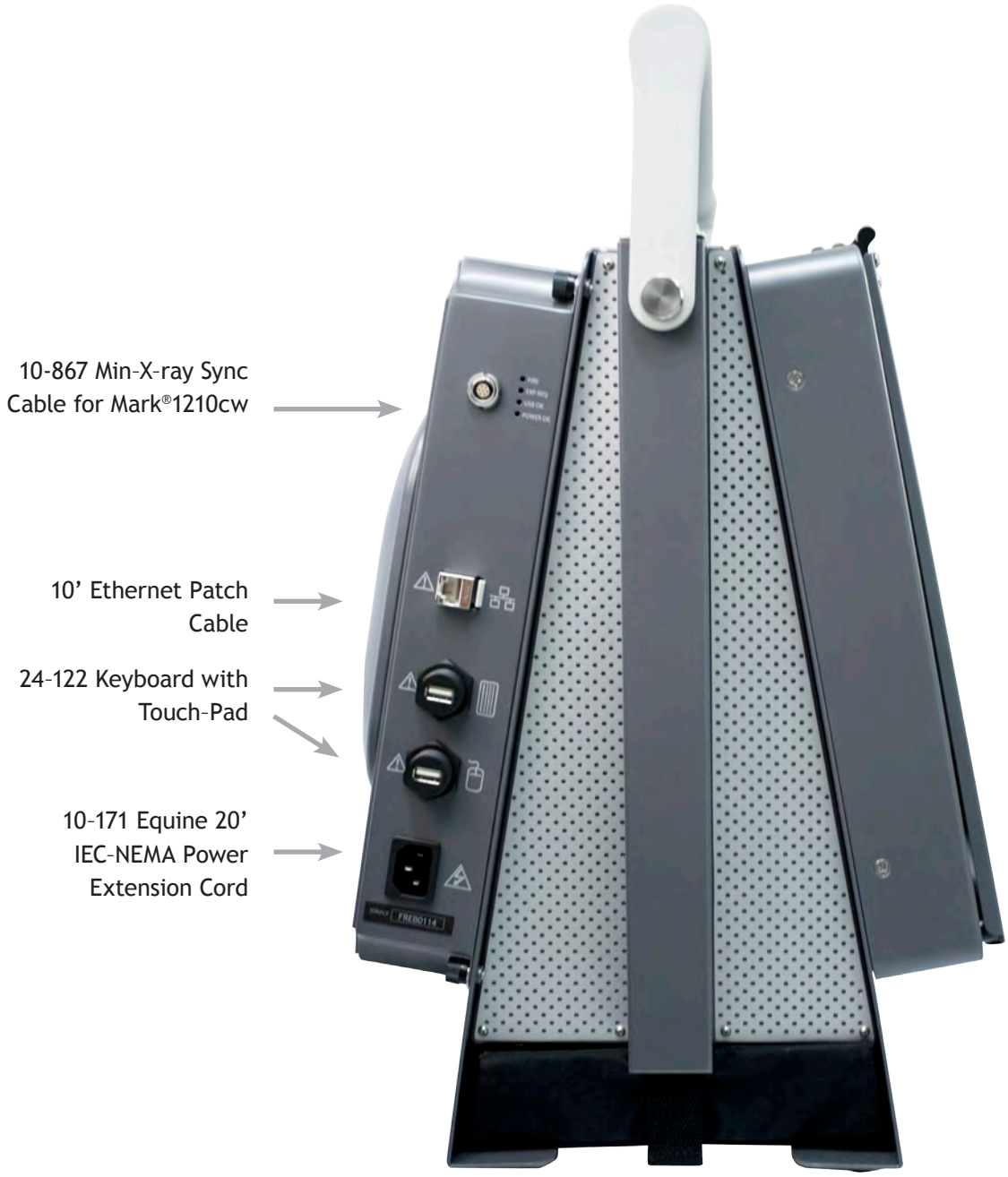
10-213 Battery Charger, Rayence 1210cw

10-212 Battery Pack, Rayence 1210cw
Two batteries included

10-214 Battery Charger Adapter

Chapter 1: Mark®1210cw System *(continued)*

The Mark®1210cw Key Connections Overview


10-867 Min-X-ray Sync Cable for Mark®1210cw
10’ Ethernet Patch Cable
24-122 Keyboard with Touch-Pad
10-171 Equine 20’ IEC-NEMA Power Extension Cord

Connecting the Generator

The sync cable should stay connected to the generator and should be stored in the generator box.

1. Plug the Min-X-ray Sync Cable (10-867) into the Mark®1210cw.
   Align by red dots on each end of the connector.
2. Plug the hand switch end of the Min-X-ray Sync Cable
   (10-867) into the generator hand switch port.

Min-X-ray Sync
Cable (10-867)

Powering Up the Mark®1210cw System

1. Plug the female end of the power cable into the power cable slot on the Mark®1210cw box. Plug the other end into a grounded power outlet (see page iii Power Requirements).
2. With the cables connected, turn on the Mark®1210cw by pressing the power button on the top of the unit.

Chapter 2: Opening Mark®1210cw Software

Open the Mark®1210cw software to begin the process of taking a radiograph.

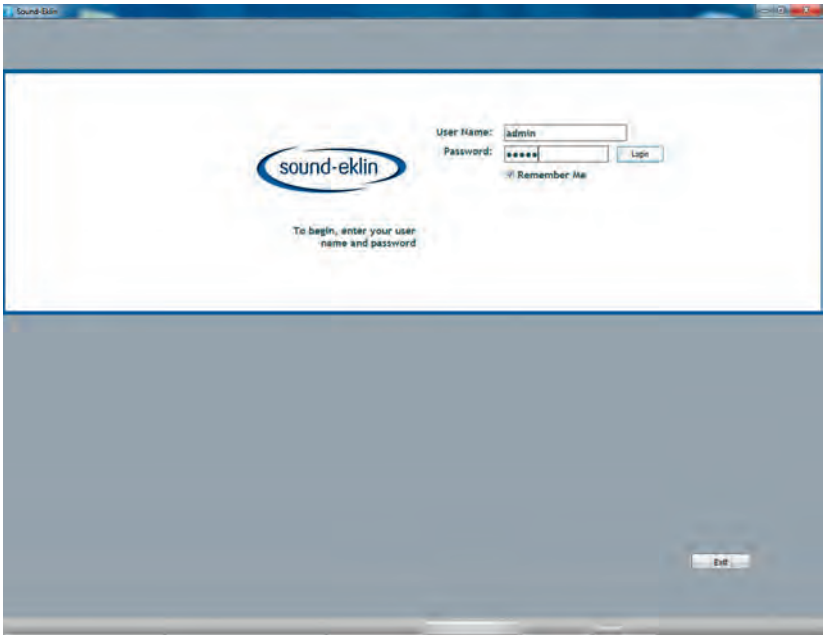
1. Double-tap the TruDR™ icon on the desktop. This will load the TruDR™ software for acquiring digital radiographs.
2. Enter the user name and password when the login screen appears.

   The default login is:

   User Name: admin

   Password: admin

The software will load directly into the Patient Screen if the "Remember Me" box is checked.

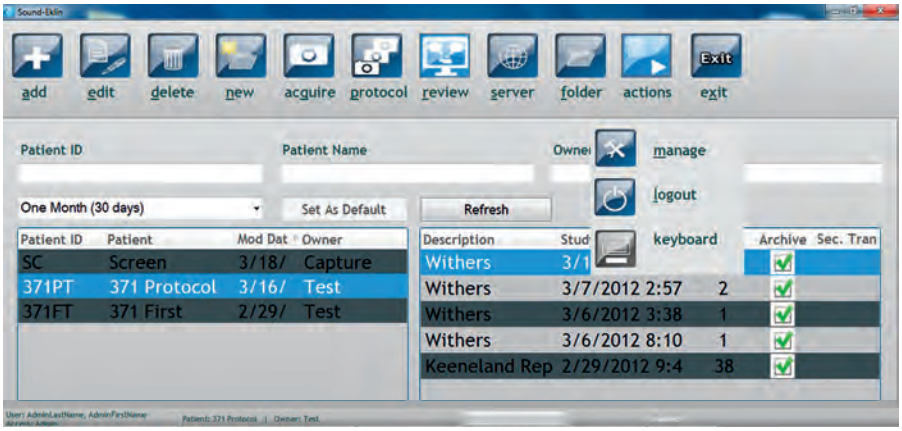


Chapter 3: Adding Users

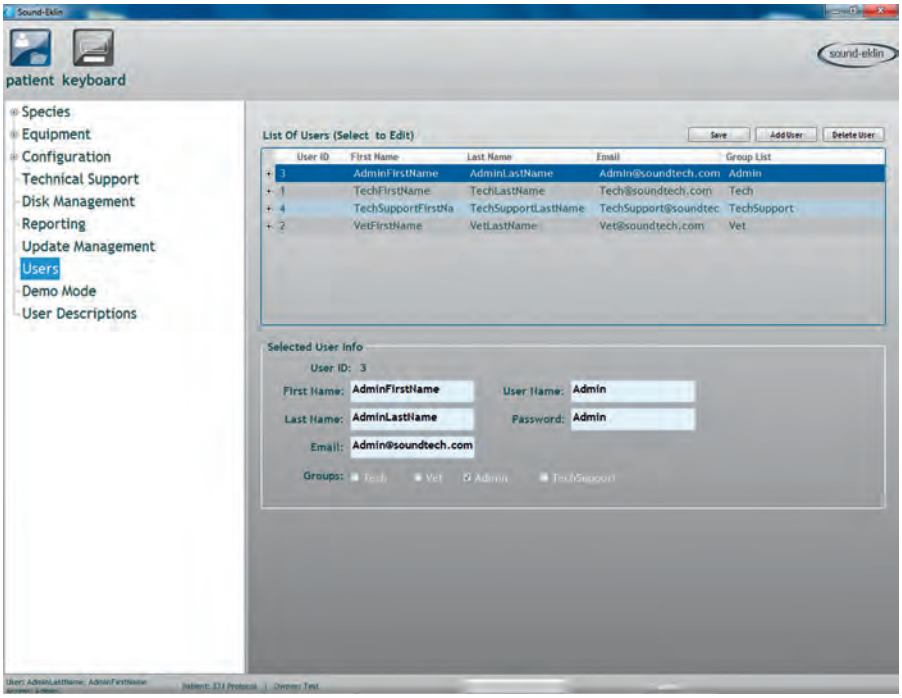
Add veterinarians and technicians to **TruDR ™** .

1. Touch the **Manage** button in the **Patient List Screen**.

To access the Manage screen, the user needs to have Administrative rights. Changing items in the Manage Screen other than "Users" and "Protocols" may cause your system to function improperly. If you are concerned about making changes in the Manage Screen, please contact Technical Support at 1.800.268.5354.



2. Select the **Users** menu from the left side of the screen to load the Users Screen.



Chapter 3: Adding Users *(continued)*

3. Touch the **Add User** button in the Acquisition Screen.
4. Enter the User's name in the **First Name** and **Last Name** fields.
5. Create a unique user name and password in the **User Name** and Password fields.

Suggested user name: First initial of your first name plus last name (e.g. jsmith for John Smith). Passwords can be left blank for ease of use.

6. Select a Group or Groups for each user by Touching **Tech** or **Vet**.

   Each Group allows different permissions. You may select multiple check boxes per user:

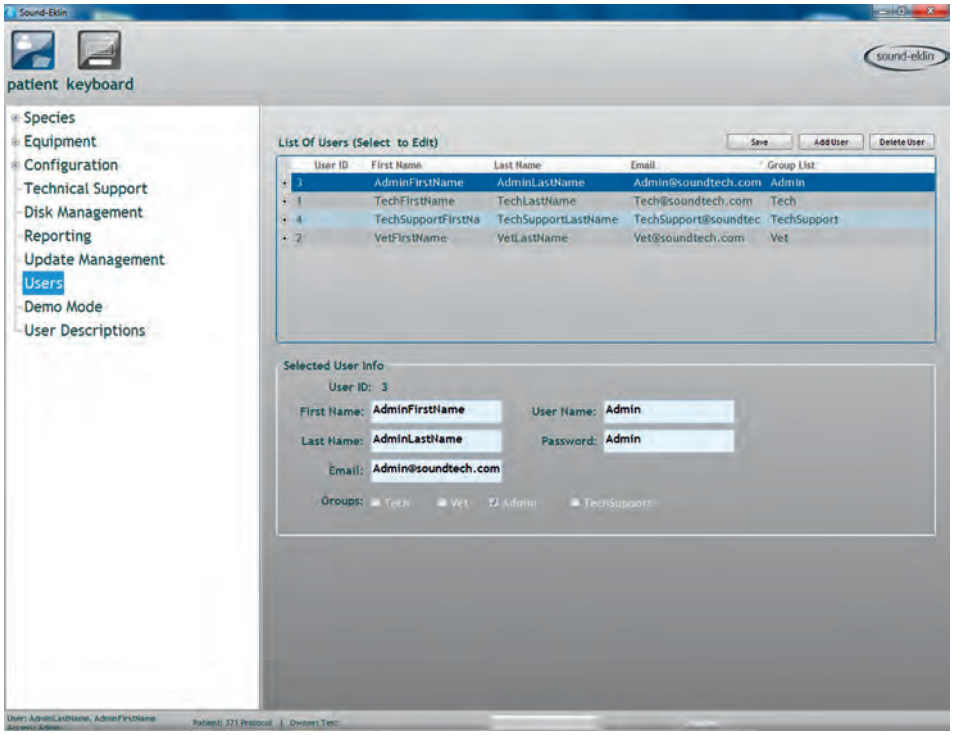
   Tech: User is added to the Tech pull down list has no access to the Manage features.

   Vet: User is added to the Vet pull down list, has no access to the Manage features.

   Admin: Has full access to the Manage features.

   Tech Support: Should only be used by Sound-Eklin® Tech Support

7. Touch the Save button [Save] to add the User.



8. Repeat steps 3 through 7 to add additional Users.

Please note: There must be at least one TECH active in the user menu.

Chapter 4: Patient Information

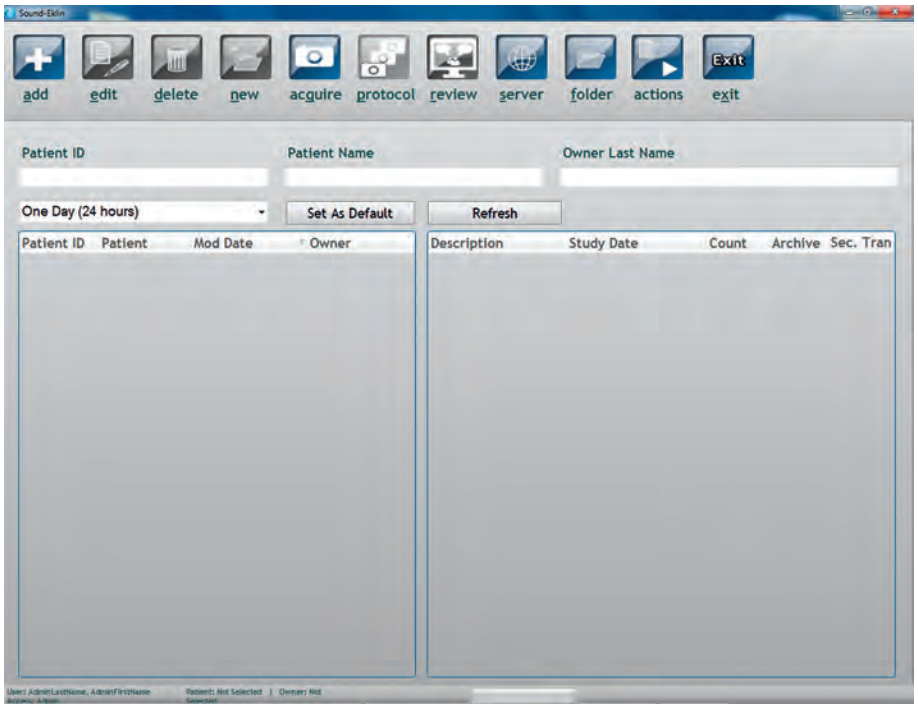
Searching and Adding Patients

Search for existing patients or add new patients easily by using the filtered search fields.

1. Search for a patient in the Patient Screen by entering the **Patient ID**, the **Patient Name**, or the **Owner Last Name**. The patient list will automatically filter as you type.

   Patient list is displayed based on the User Selected Default.

2. If you do not see the patient you are searching for, Touch the **Add** button or press the **Enter** key on the keyboard to bring up the Add Patient Screen.



3. Enter the patient's information. **Patient Name** and **Last Name** are required fields.

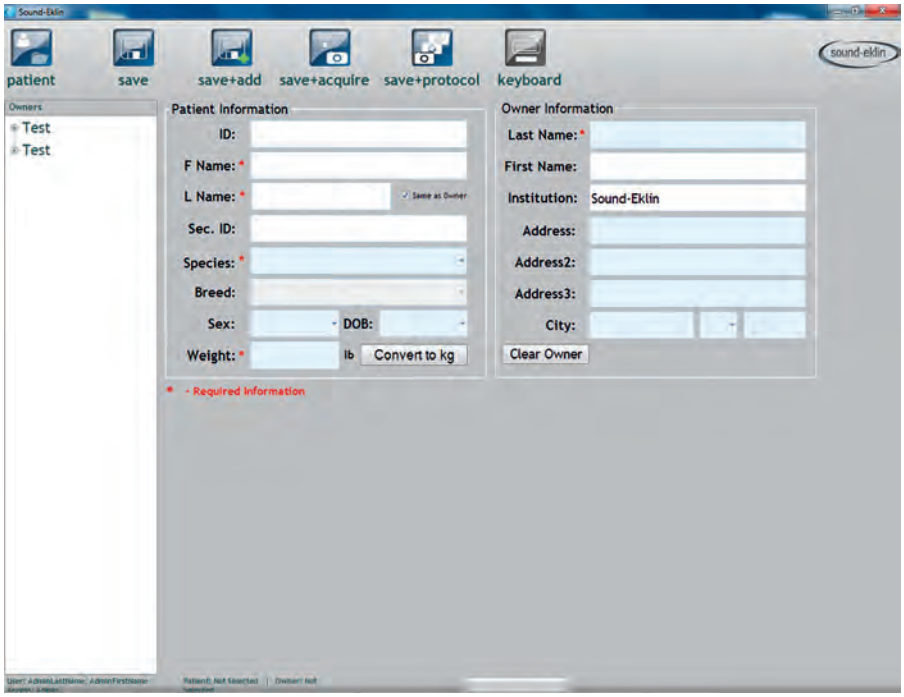
   When entering patient name and last name, DO NOT use special characters such as: % $ &. Special characters and symbols can cause problems in the patient name fields.

Chapter 4: Patient Information

Searching and Adding Patients *(continued)*

4. Touch one of the Save buttons.

	Save	Saves the current patient and returns you to the Patient Screen.
	Save+ Add	Saves the current patient **and remains in the Add Patient Screen.**
	Save+ Acquire	Saves the current patient then **opens the Anatomy Selection Screen.**
	Save+ Protocol	Saves the patient and **brings you to the Protocol Selection Screen.**



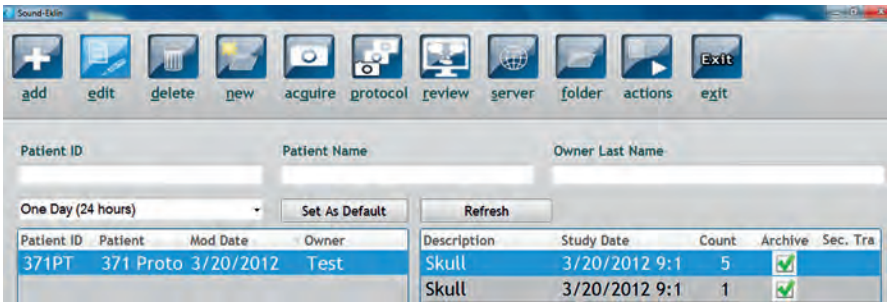
Chapter 4: Patient Information *(continued)*

Editing an Existing Patient's Information

Edit an existing patient's information for future DICOM tagging.

Previous exam information cannot be changed

1. Select a patient to edit from the Patient Screen.
2. Touch the **Edit** button.



3. Edit the information as needed.

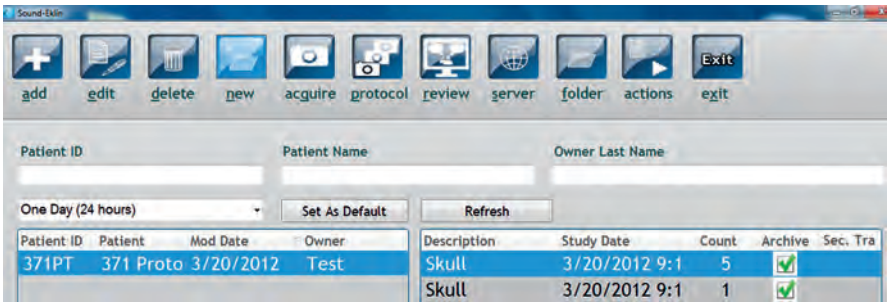
If the patient is from an owner previously entered, owner can be selected from owner list on the left hand side.

4. Touch the appropriate **Save** button *(see Page 14)*.

Creating a New Study for an Existing Patient

Create a new study for a patient previously entered in TruDR™ .

1. Search for a patient in the Patient Screen by entering the Patient ID, the Patient Name, or the Owner Last Name. The Patient List will automatically filter as you type.
2. Select a patient by Touching on the name in the Patient List.
3. Touch the New button to create a new study.



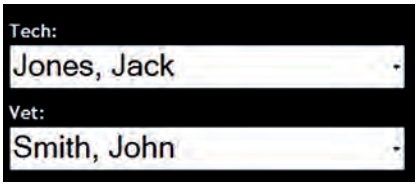
4. Select the anatomy and the view from the Anatomy Screen *(see Page 16)*.

Chapter 5: Creating Radiographs

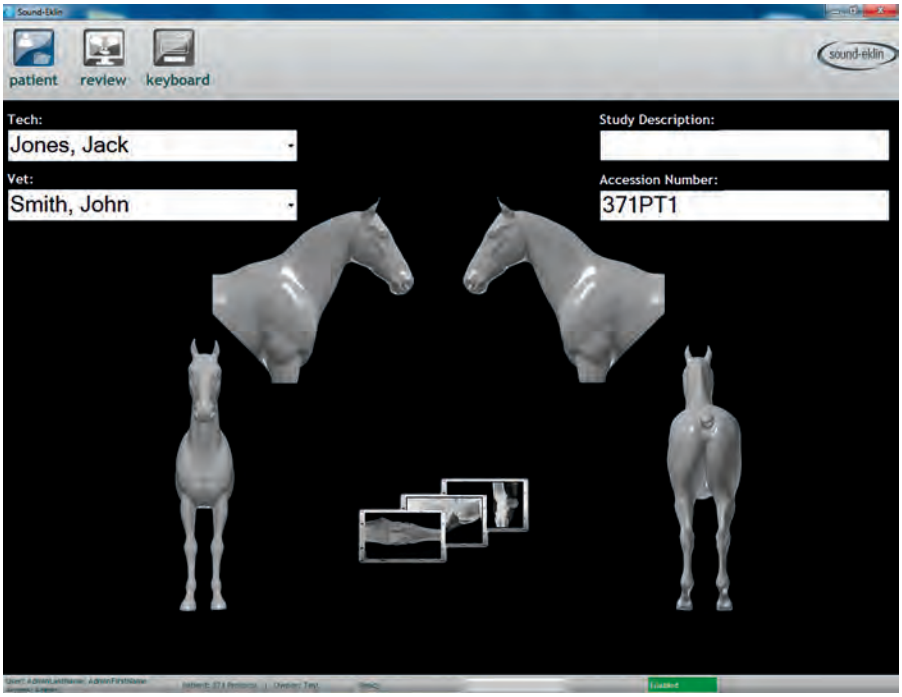
Choosing Anatomy and Positioning

Choose the anatomy and positioning to automatically enhance and position the radiograph.

1. Select the **Tech** and ordering **Vet** from the drop-down menus.



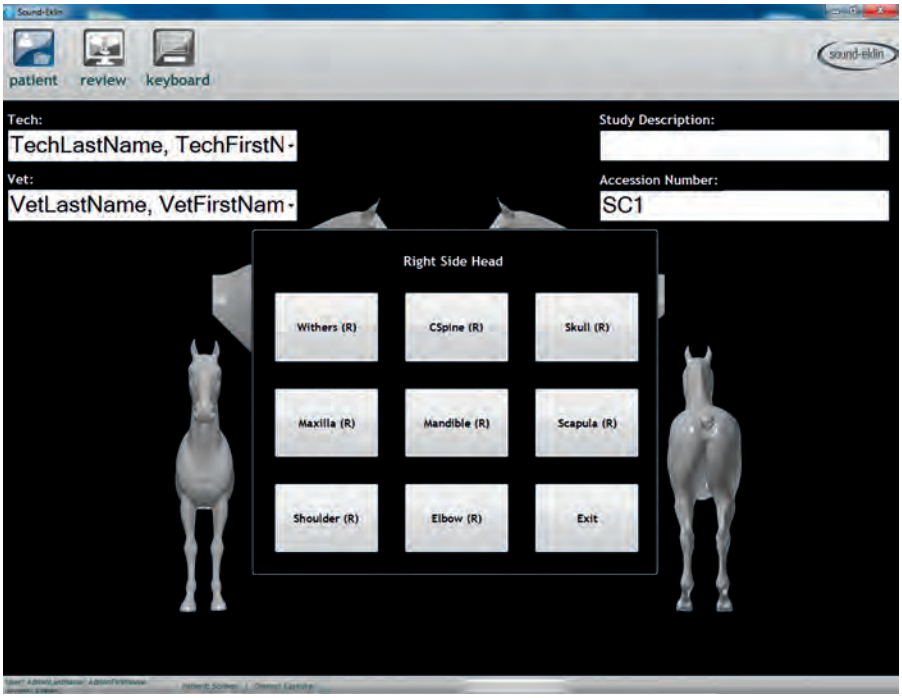
2. Touch the Mark®1210cw touchscreen and select the appropriate anatomy.



Chapter 5: Creating Radiographs

Choosing Anatomy and Positioning *(continued)*

3. Touch on the appropriate view button for the exposure. This will bring you to the acquisition screen.



Chapter 5: Creating Radiographs *(continued)*

Acquiring Radiographs

1. Set the X-ray generator according to the Sound-Eklin® Technique Chart using the appropriate KVP and mAs (depending on the X-ray generator).

   Due to variations between X-ray generators, optimal techniques may vary somewhat from the values printed on the Sound-Eklin® Technique Chart.

   Users should be fully acquainted with State and local regulations governing radiation protection and the use of diagnostic X-ray equipment as well as the manual for the X-Ray Generator being used.

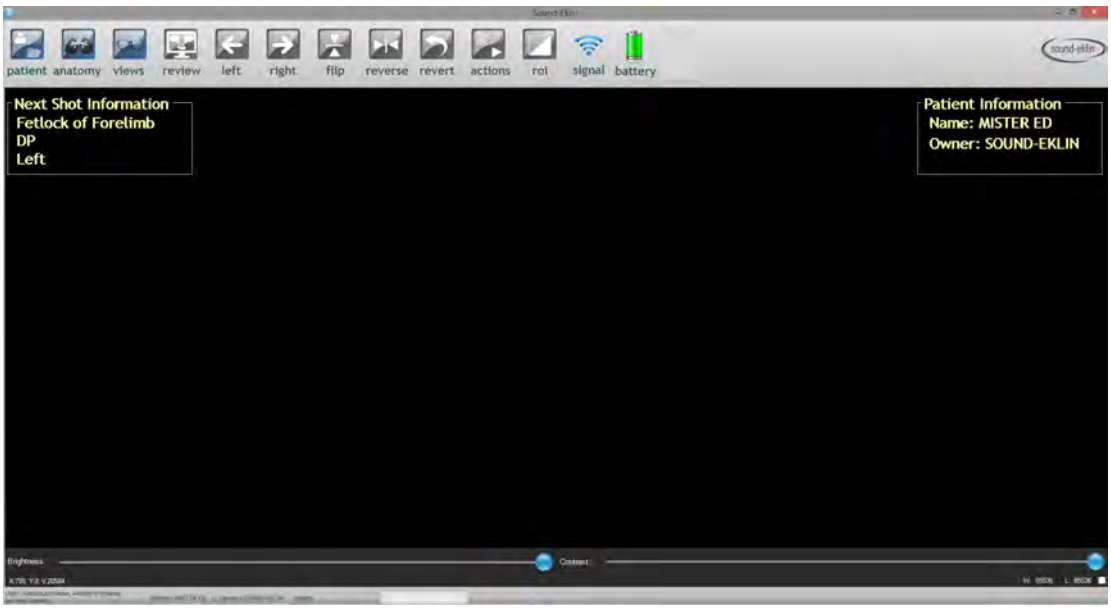
2. Align the generator 26 inches from the plate using the light beam to fill the entire capture area defined on the plate.

   If the generator is aligned perpendicular, the light will form a rectangle with even sides filling the capture area.

   The image capture area is highlighted by a white box with the dotted cross-hairs in the middle.

3. From the Acquisition Screen press the hand switch halfway down to prep and all the way down to expose the X-ray machine.

   Proper Two-Stage Hand Switch Technique
   1. ***To Prep, push the hand switch halfway down.***
   2. ***Wait until the Generator is ready to fire (i.e. prep light on the X-ray machine is illuminated, etc.).***
   3. ***To expose, push the hand switch completely down.***



Chapter 5: Creating Radiographs

Acquiring Radiographs *(continued)*

4. The image will appear in approximately 5 seconds. Use the Use Left, Right, Flip, Reverse, ROI or Crop buttons to make orientation adjustments before shooting the next shot.

'Window' and level with finger in up and down, left or right motion.

Crop the images as needed (see Pages 20-21).
If you need to reshoot your X-ray, press the hand switch and fire again.

5. **Touch the Views button** **to change views.**
6. Touch the **Anatomy** button if another anatomy is needed.
7. Touch the **Review** button to review.
8. **Wireless Signal Strength is indicated by this icon:**

9. **Battery Life is indicated by this icon:**

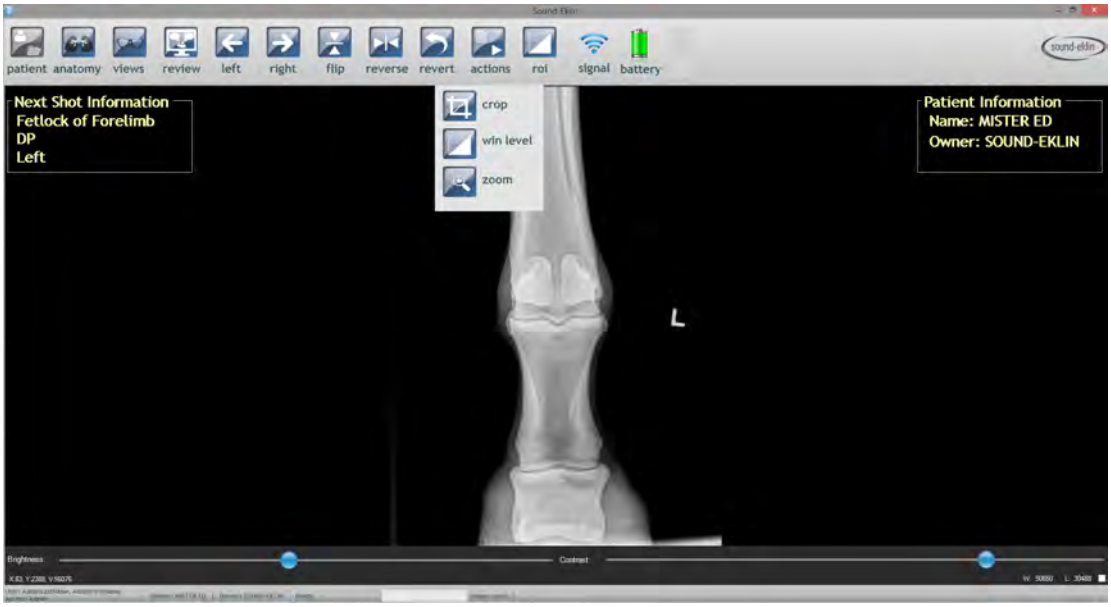
Chapter 5: Creating Radiographs *(continued)*

Cropping a Radiograph

Remove unwanted portions of the radiograph.

1. Make adjustments before shooting the next radiograph. To do so,
   Touch the **Action** button. Touch the **Crop** button in the Acquisition Screen.

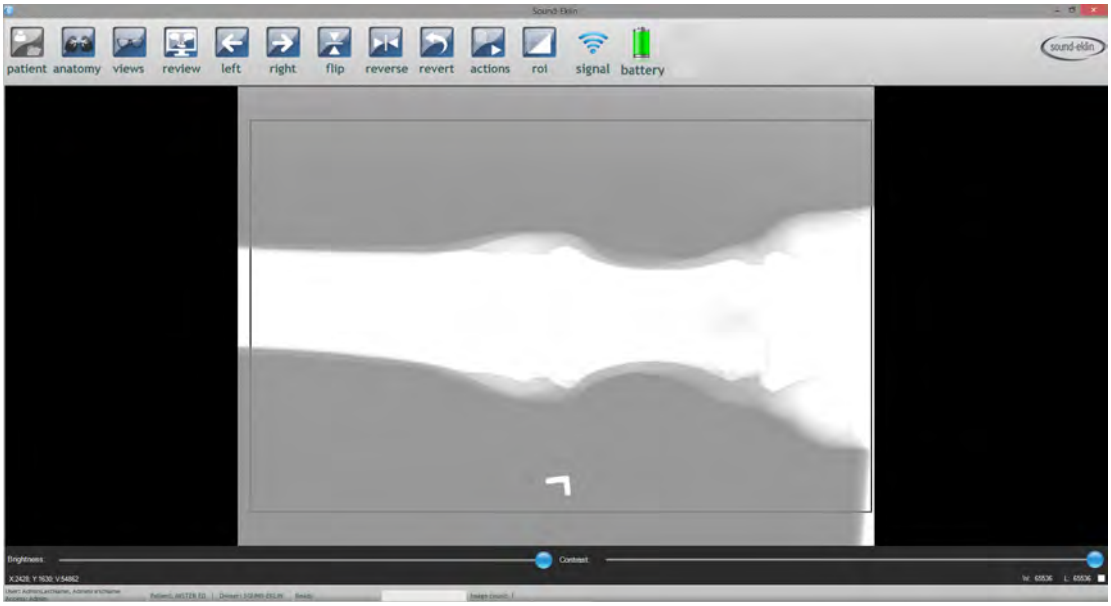
The new image will appear lighter after Touching the crop button.
Based on the crop selection the image will be windowed and leveled again.



Chapter 5: Creating Radiographs

Cropping a Radiograph *(continued)*

2. Frame the desired image dragging from upper left corner to lower right hand corner of the touchscreen with finger.



3. The image will enhance once it is cropped. The image will perform an ROI based on crop size.
4. Re-crop the image if necessary before taking the next radiograph by repeating the steps.

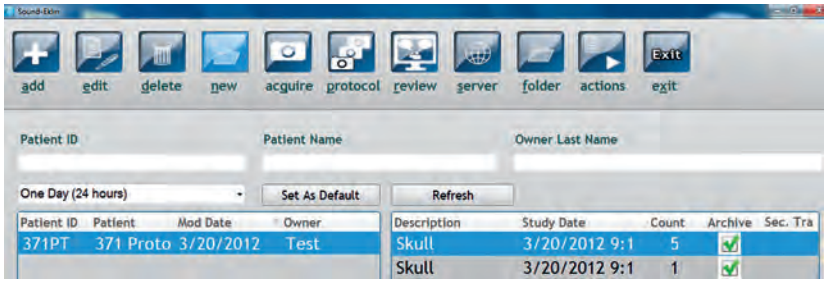
Chapter 6: Protocols

Using Protocols

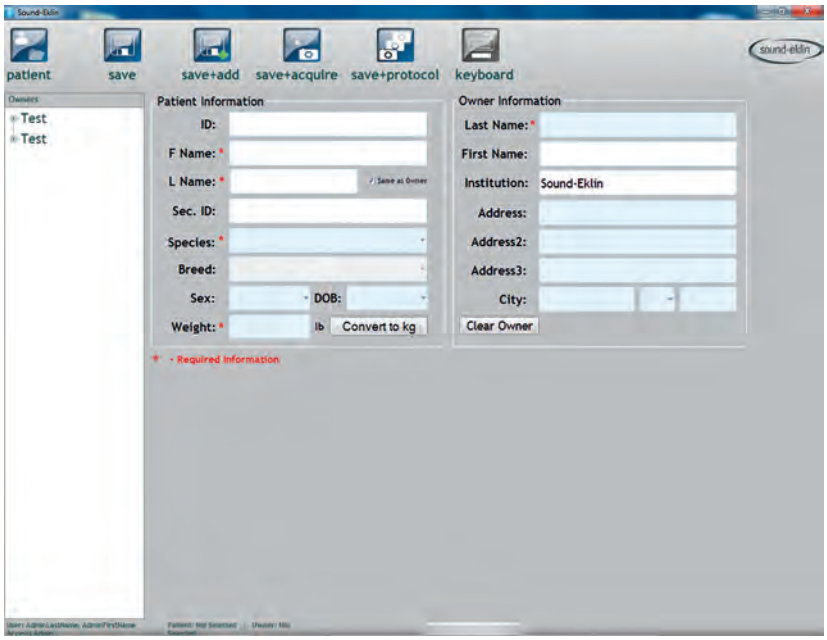
Shoot a series of X-rays in a preset order which automatically advances to the next shot after each shot taken.

1. From the Patient Screen, select the **Patient** and Touch **Protocol**.

Or, from the Patient Screen, select **New and then touch the Protocol** link on the Anatomy Selection screen.



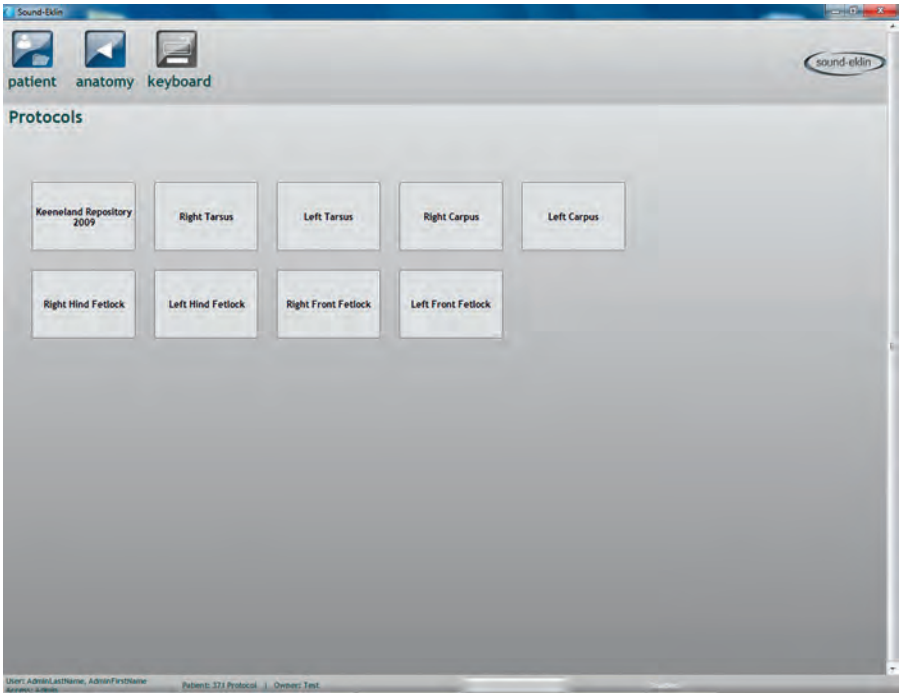
Or, from the Add Patient or Edit Patient screen, Touch **Save + Protocol**. *(To Add a Patient see page 11)*.



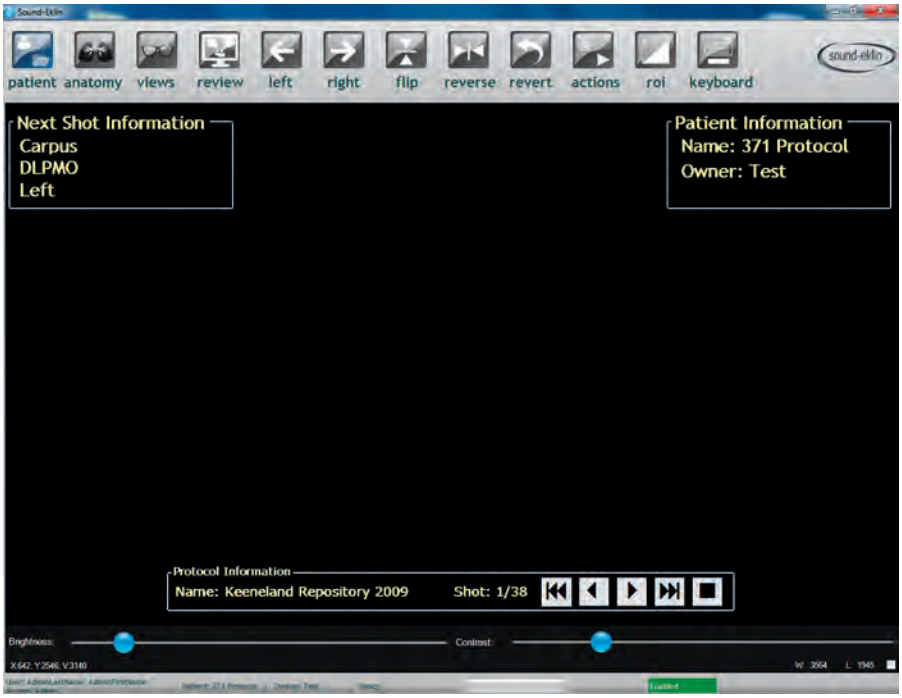
Chapter 6: Protocols

Using Protocols *(continued)*

2. Press a **Protocol** button to begin that Protocol.



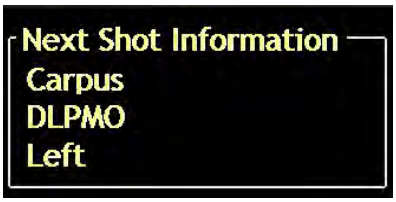
3. **The Acquisition Screen will display a Protocol Overlay consisting of Next Shot Information, Patient Information and Protocol Information subsections, as seen in the next image.**

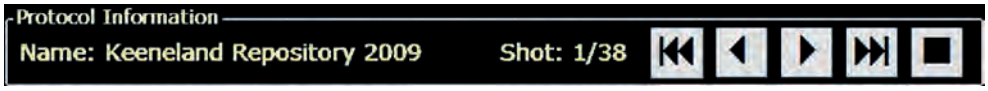


Chapter 6: Protocols

Using Protocols *(continued)*

4. Shoot the first image. The software will automatically advance to the next shot in the protocol series. The shot number in the Protocol Information Bar keeps track of the shot **sequence, while the Shot Information for the next image appears in the upper left.**





5. Use the Protocol Information bar to repeat a shot, skip a shot, restart the protocol, move to the last shot in the protocol, or stop the protocol.

Move to the first shot in the protocol series

Repeat the previous shot

Skip to the next shot

Skip to the last shot in the protocol series

Stop the protocol

6. Touch the **Review** button to open the Review screen *(see Page 34)*.

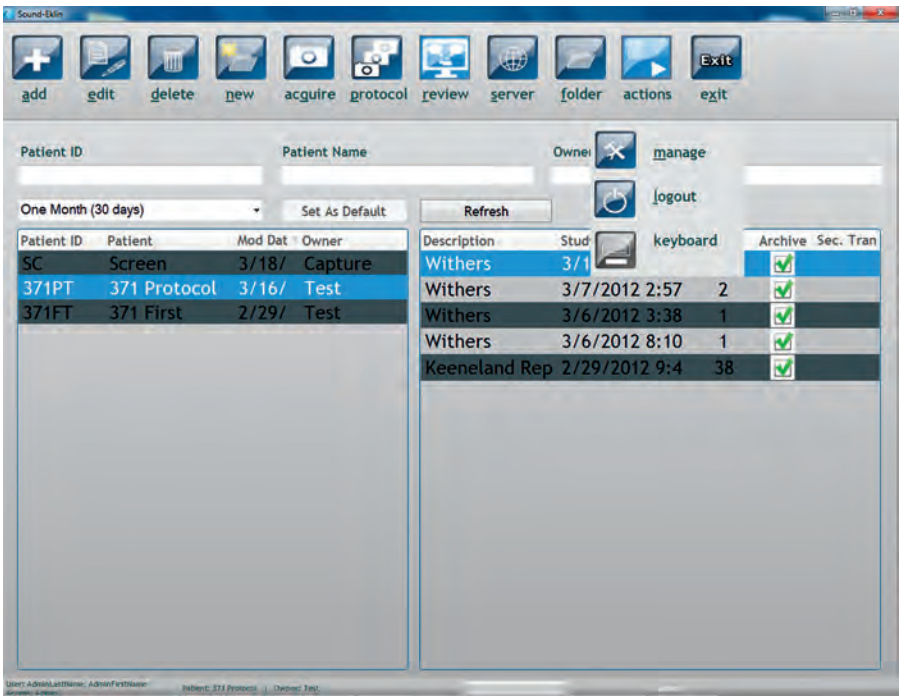
Chapter 6: Protocols *(continued)*

Adding New Protocols

Create new protocols for your individual studies.

1. Touch the **Actions** button to access the **Manage** button in the Patient Screen.

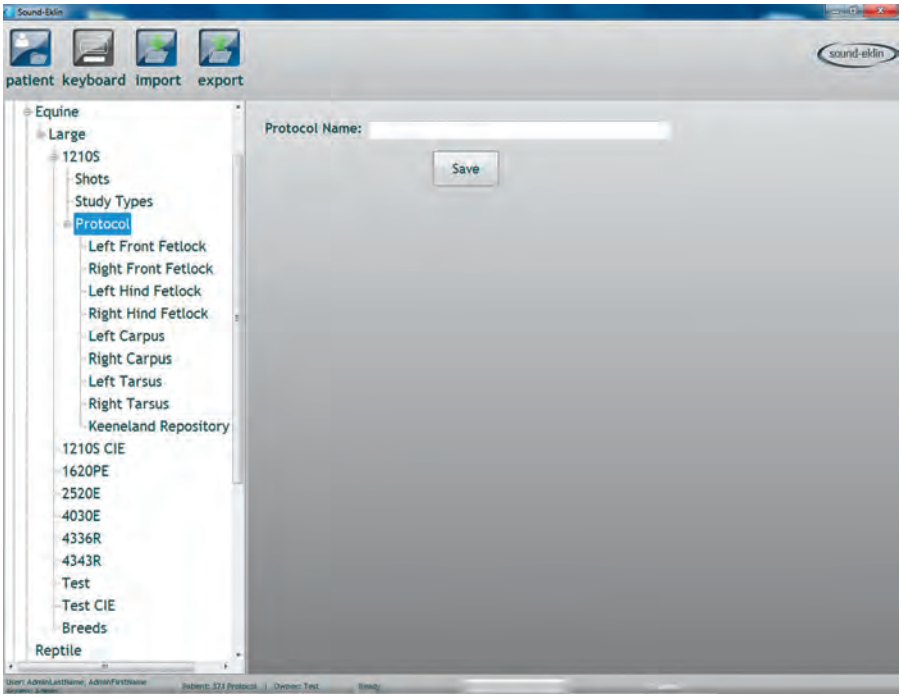
To access the Manage screen, the user needs to have Administrative rights. Changing items in the Manage Screen other than "Users" and "Protocols" may cause your system to function improperly. If you are concerned about making changes in the Manage Screen, please contact Technical Support at 1.800.268.5354.



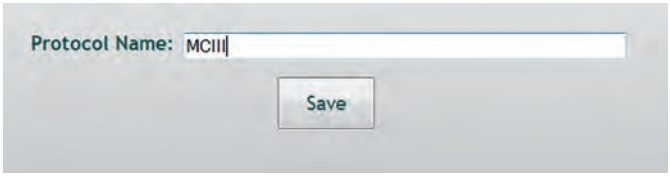
Chapter 6: Protocols

Adding New Protocols *(continued)*

2. Touch on the **Plus Sign** next to the Protocols List to show the existing protocols.
3. Select the **Protocols** menu from the left side of the screen to load the Protocol Screen. Navigate to Species > Equine > 1210W > Protocol.



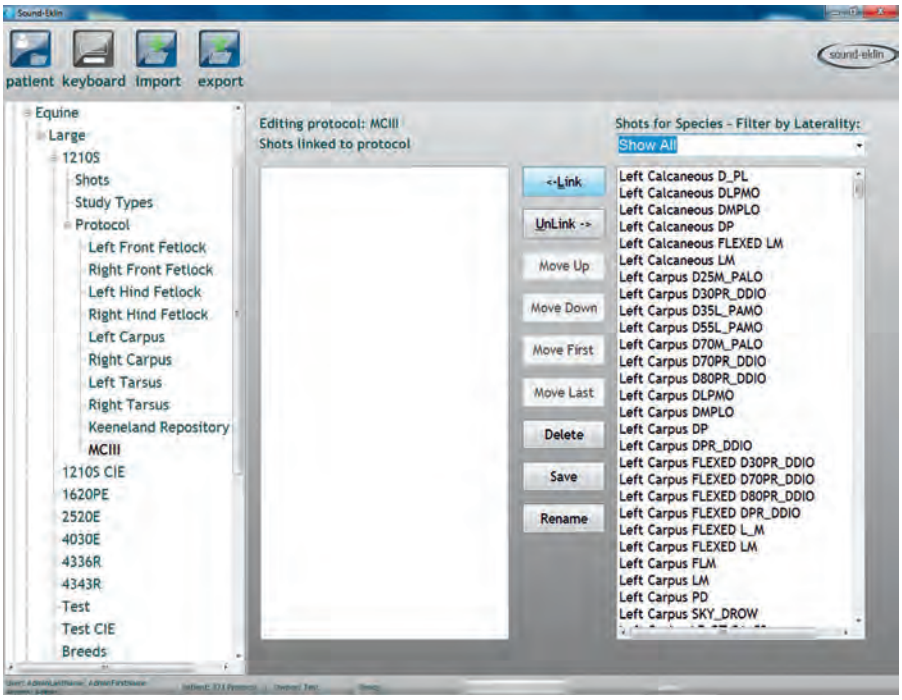
4. Enter the name of your new protocol in the **Protocol Name** field.
5. Touch the **Save** button.



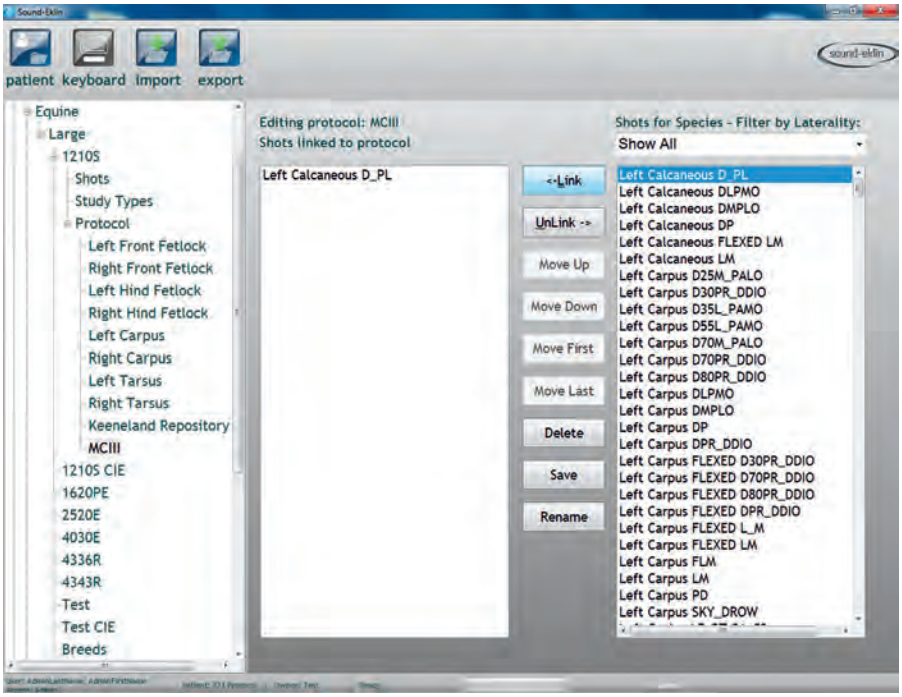
Chapter 6: Protocols

Adding New Protocols *(continued)*

6. Filter the shots as necessary by selecting the **Filter by Laterality** drop down menu.



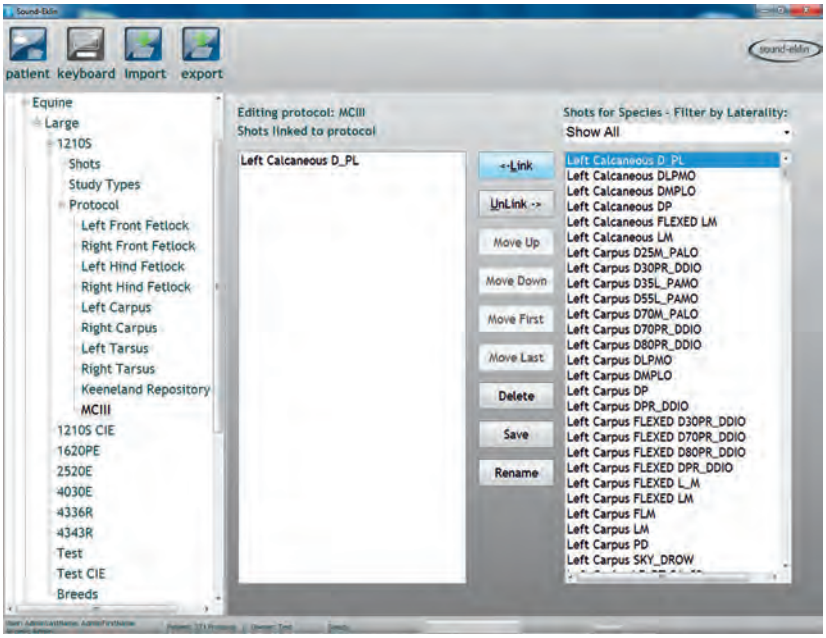
7. Select the first shot from the Shots for Species list.



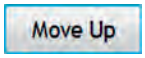
8. Touch the **Link** button to add the shot to the **Shots Linked to Protocol** box.

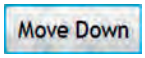
Chapter 6: Protocols

Adding New Protocols *(continued)*



9. Repeat step 6 through 8 as necessary.
10. Touch the **Unlink** button to remove any shots from the **Shots Linked to Protocol** box.
11. Select a shot in the **Shots Linked to Protocol** box and change the order using the **Move Up, Move Down, Move First,** and **Move Last** buttons.

 Moves your protocol shot up one shot in the series.

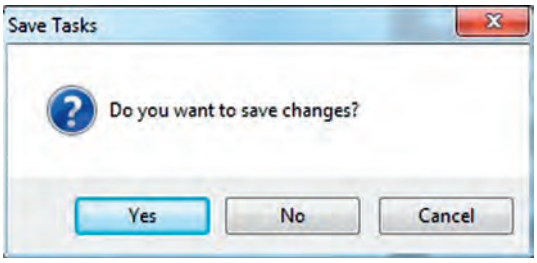
 Moves your protocol shot down one shot in the series.

Moves your protocol shot from its location to the first shot in the series.

Moves your protocol shot from its location to the last shot in the series.

12. Touch the **Save** button to save your protocols.
13. Touch the **Patient** button to return to the Patient Screen.

If you have forgotten to save your protocols, a Save dialogue box will appear. Touch the Yes button to save your changes and return to the Patient Screen.



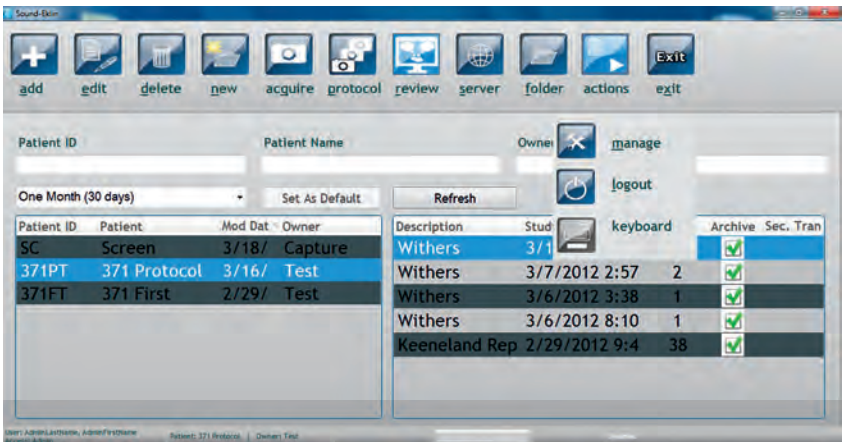
Chapter 6: Protocols *(continued)*

Editing Existing Protocols

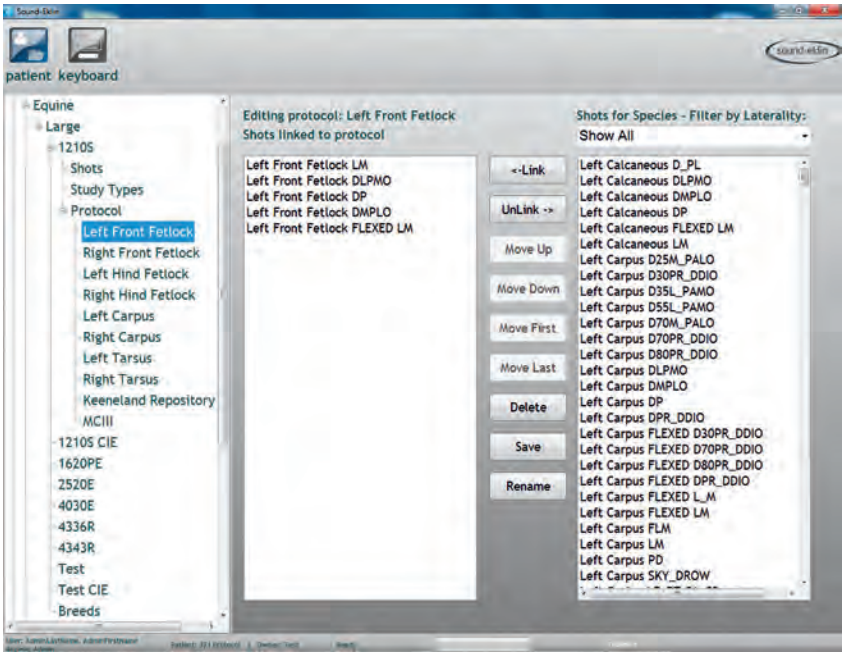
Edit current Protocols to customize them to your shot series.

1. Touch the Actions button to access the **Manage** button in the Patient Screen.

To access the Manage screen, the user needs to have Administrative rights. Changing items in the Manage Screen other than "Users" and "Protocols" may cause your system to function improperly. If you are concerned about making changes in the Manage Screen, please contact Technical Support at 1.800.268.5354.



2. Touch on the **Plus Sign** next to the Protocols list to show the existing protocols.
3. Select a **Protocol** to edit from the left side menu, make changes and Touch **Save**.



Closing the software and re-opening is required to save protocol database changes.

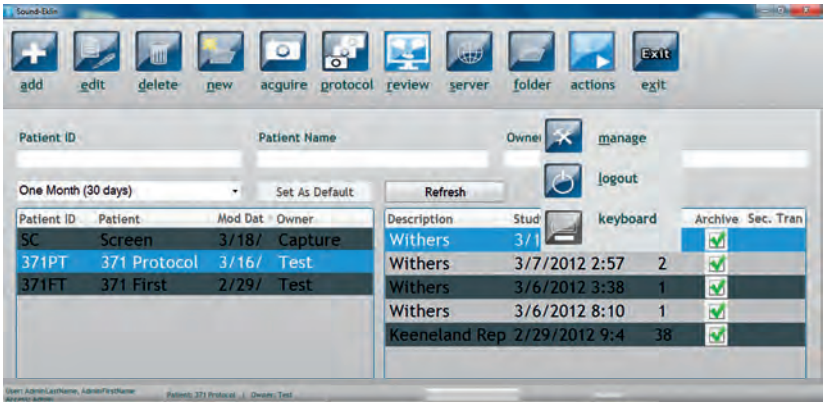
Chapter 6: Protocols *(continued)*

Renaming Protocols

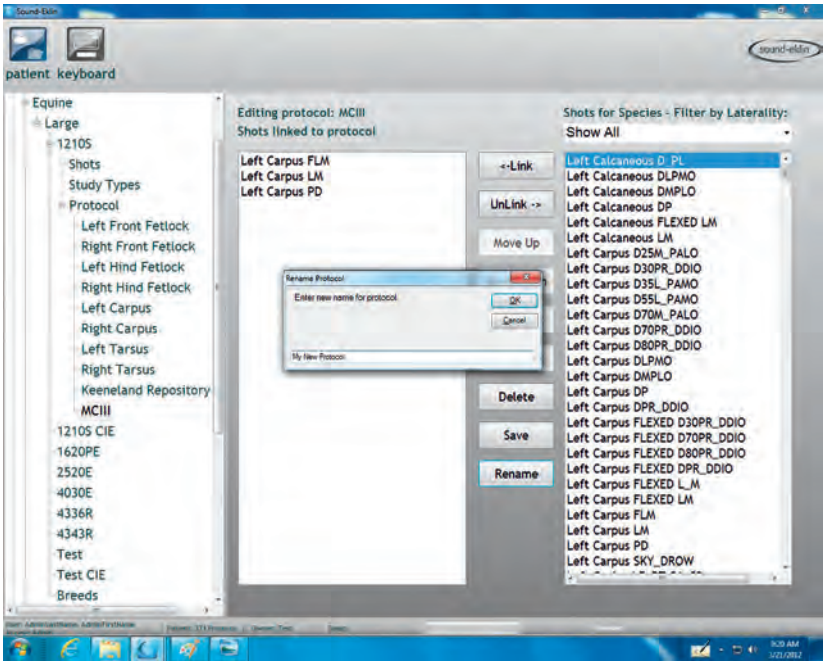
Rename current protocols.

1. Touch the Actions button to access the **Manage** button in the Patient Screen.

> ***To access the Manage screen, the user needs to have Administrative rights. Changing items in the Manage Screen other than "Users" and "Protocols" may cause your system to function improperly. If you are concerned about making changes in the Manage Screen, please contact Technical Support at 1.800.268.5354.***



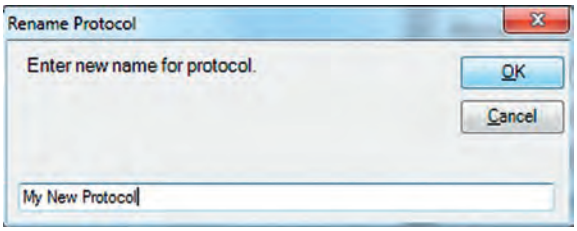
2. Touch on the **Plus Sign** next to the Protocols List to show the existing protocols.
3. Select the **Protocol** to rename from the left side menu. Touch the **Rename** button.



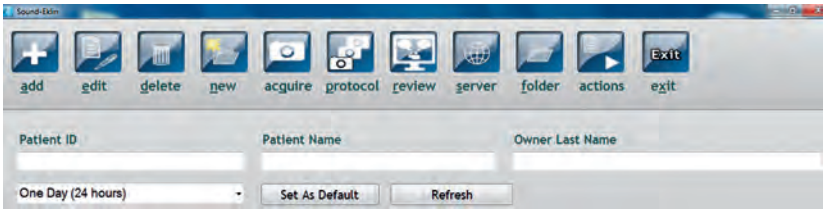
Chapter 6: Protocols

Renaming Protocols *(continued)*

4. Rename the protocol in the text box and Touch the **OK** button when finished.



5. Restart the software by touching Exit from the Main Patient Screen

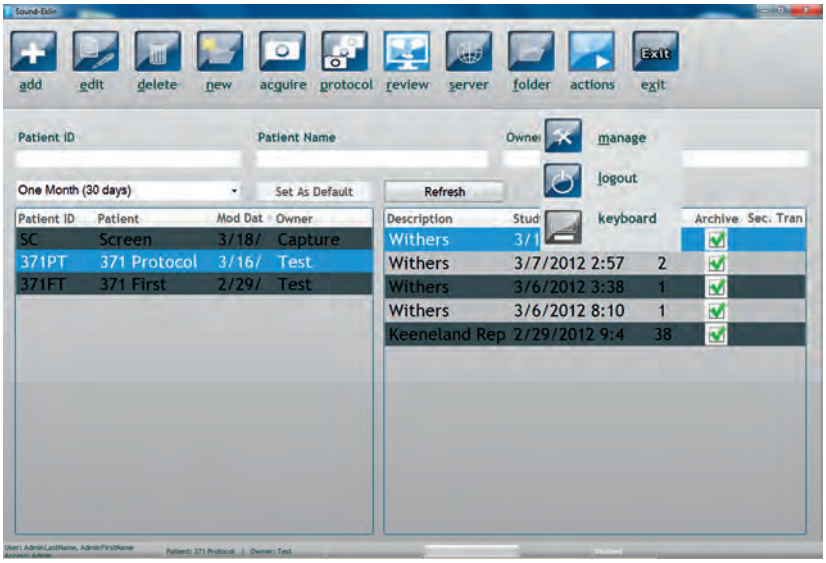


Deleting Protocols

Delete current protocols.

1. Touch the Actions button to access the **Manage** button in the Patient Screen.

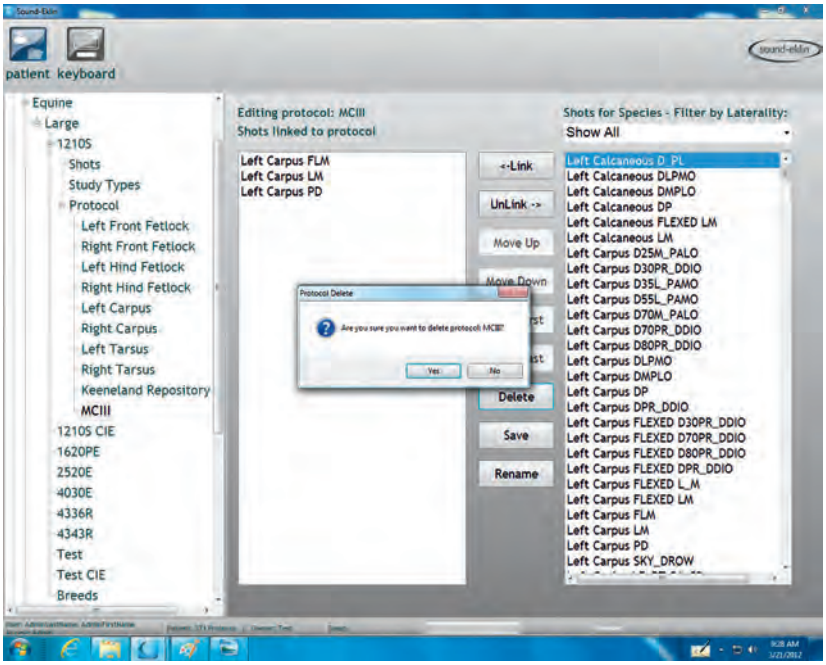
To access the Manage screen, the user needs to have Administrative rights. Changing items in the Manage Screen other than "Users" and "Protocols" may cause your system to function improperly. If you are concerned about making changes in the Manage Screen, please contact Technical Support at 1.800.268.5354.



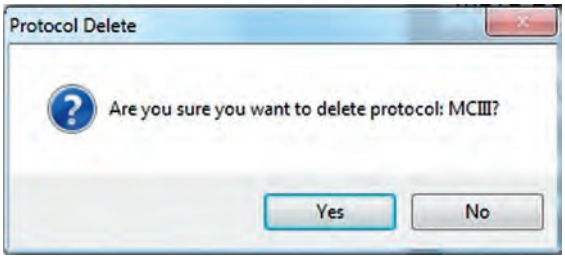
Chapter 6: Protocols

Deleting Protocols *(continued)*

2. Touch on the **Plus Sign** next to the Protocols List to show the existing protocols.
3. Select the **Protocol** to delete from the left side menu Touch the **Delete** button.



4. **Touch the Yes button** to permanently remove the protocol.



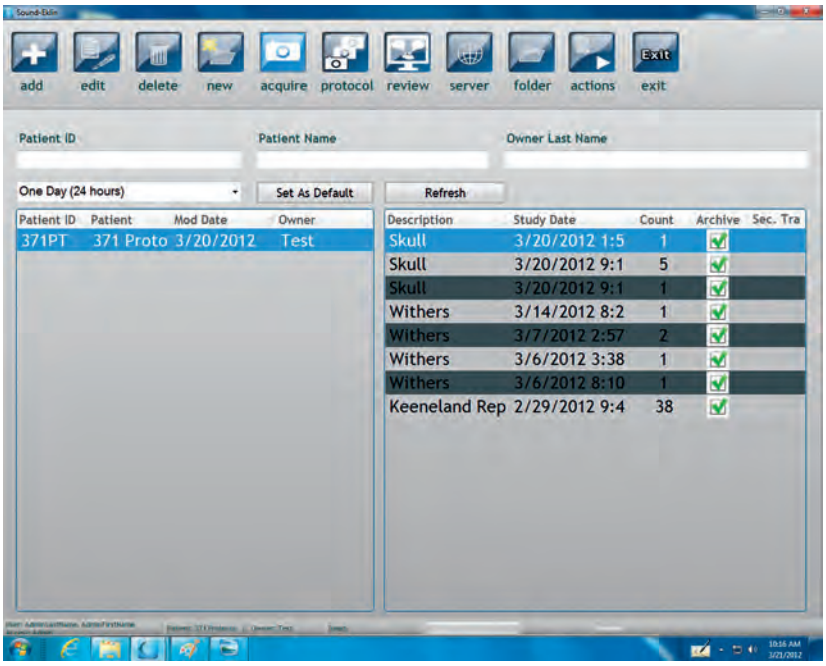
5. Restart the software by touching the close button in the upper right corner.

Chapter 7: Managing Studies

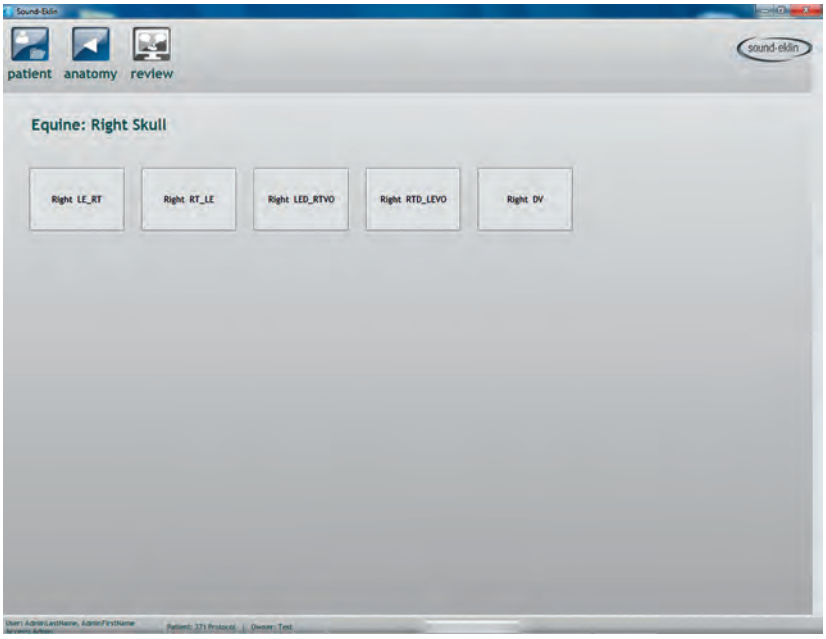
Adding New Images to an Existing Study

Add new images to an existing patient's study.

1. Search for a patient in the Patient Screen by entering the **Patient ID**, the **Patient Name**, or the **Owner Last Name**. The Patient List will automatically filter as you type.
2. Touch the Acquire button.



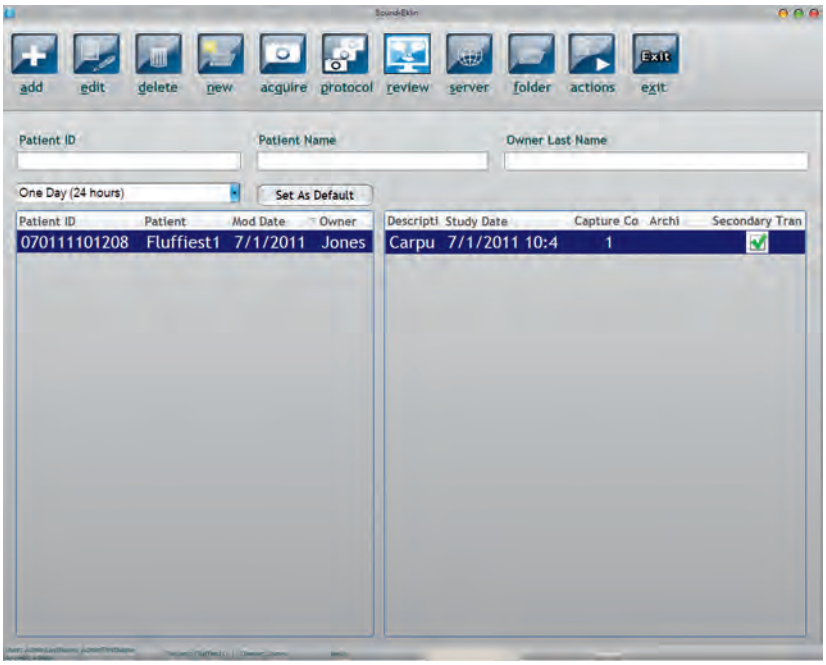
This will take you to the Views Screen using the anatomy you selected from the original study. This is shown in the description field.



Reviewing a Study

Change the layout or delete any unwanted images before the study is archived on the Storage Station.

1. Select a patient by Touching on the name in the **Patient List**.
2. Touch on the **Study** from the list on the right.
3. Touch the **Review** button.



4. Select a thumbnail in the left-hand pane to load the image into the review pane on the right. The selected image is highlighted by a yellow box.

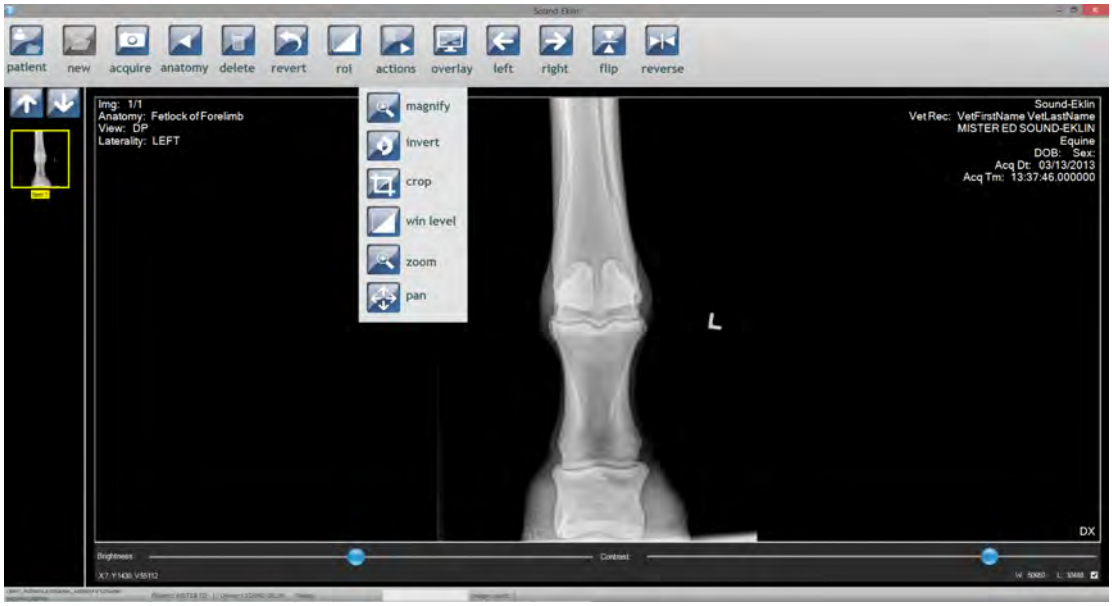
Chapter 7: Managing Studies

Reviewing a Study *(continued)*

5. Review the images by using the following techniques:

Zoom:	Once the Zoom button is selected tap the screen on area you would like to Zoom in on. To Zoom out tap revert button.
Pan:	Tap the Pan button, Touch and drag the image with your finger.
Window Level:	Tap Window Level button, Move up and down with finger on screen to perform Level. Dragging finger Left to Right is Window.

6. Use the toolbar for advanced review features.



	Patient:	Returns to the Patient Screen.
	New:	Opens the Anatomy/Protocol Screen for creating a new study or protocol.
	Acquire:	Opens the Views Screen using the anatomy you selected from the original study.
	Anatomy:	Opens the Anatomy/Protocol Screen to select a new view to add into the same study.
	Save:	Saves the image with any changes that have altered the original image.

Warning message will appear to choose "Yes" to overwrite (replace) the image or "No" to create a new (additional) image.

	Delete:	Removes any unwanted images.

Deleting an image permanently removes it from the computer.

Chapter 7: Managing Studies

Reviewing a Study *(continued)*

Delete: Removes any unwanted images.

Revert: Reverts to the original image.

Rotate:

Left: **Rotates the image 90° counterclockwise.**

Right: **Rotates the image 90° clockwise.**

Flip: **Flips the image vertically.**

Reverse: Flips the image horizontally.

Actions: Shows a drop-down menu with additional review features.

Magnify: Activates the magnifier which will zoom on the selected area.

Invert: Inverts blacks and whites, replicating a fluoroscopy.

Crop: Trims an image without applying enhancements.

Win Level: Selects the window level feature (also accessible using right mouse button).

Zoom: Activates the magnifier which will zoom on the selected area

Pan: Pans the image (also accessible by using the left mouse button).

In the Review Screen, cropping does not re-enhance the image based on the captured area. It only trims the image without re-enhancing the image.

Overlay: Opens menu for DICOM text display.

Hide: Hides all DICOM information.

Summary: Displays patient and shot information.

Detail: Displays patient, shot, and additional detailed information.

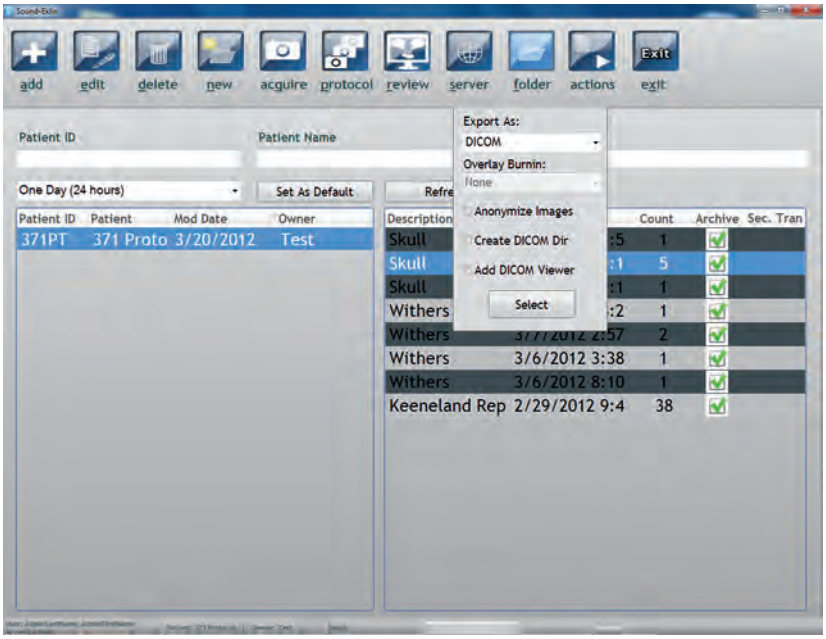
ROI: Draw a box from left to right to window and level based on the Region of Interest.

7. Touch the **Patient** button to return to the Patient Screen.

Chapter 8: Exporting Images to a Folder

Export images from a study to a folder to save on a computer, thumb drive, etc.

1. Search for a patient in the Patient Screen by entering the **Patient ID**, the **Patient Name**, or the **Owner Last Name**. The Patient List will automatically filter as you type.
2. Select a patient and a study. The patient and study are highlighted in a blue box.
3. Touch the **Folder** button.



4. Select either the DICOM or JPEG image format from the Export As: drop-down menu.
5. When selecting the DICOM option from Step 4, Touch the Add DICOM viewer check box only if the computer does NOT have a full DICOM viewer already installed.

Annotation Burning	***Imprints annotations made to saved images***
Anonymize Images	***Strips all client and clinic information from the images***
Repository Format	***Places images in a repository folder format***
Create DICOM DIR	***Adds a DICOM directory to quickly import all images into a PACS system.***

Chapter 8: Exporting Images to a Folder *(continued)*

6. When selecting the JPEG format from Step 4, select the Overlay Burning options from the drop-down menu:

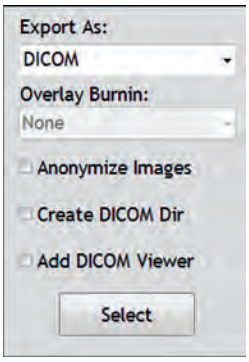
   The default option is set to None:

   None: Does not show overlays on the JPEG image

   Detail: Shows a detailed DICOM overlay on the JPEG image (shows Image Number, Manufacturers Model Number, Study ID, Image Anatomy, View Position, Image Laterality Extended, Columns X Rows, Technique, Institution Name, Physician of Record, Patients Name, Patient ID, Patient Breed Description, Patients Birth Date, Patients Sex, Acquisition Number, Acquisition Date, Acquisition Time.)

   Summary: Shows a summary DICOM overlay on the JPEG image (shows Image Number, Image Anatomy, View Position, Image Laterality Extended, Institution Name, Physician of Record, Patients Name, Patient Breed Description, Patients Birth Date, Patients Sex, Acquisition Date, Acquisition Time).

7. Touch the Select Button.



8. Select a location to save the images.

   Images are saved to a selected location in a folder with the animals name and the clients last name (e.g. Trigger-Smith).

Chapter 9:
Transferring Studies to the Storage Station

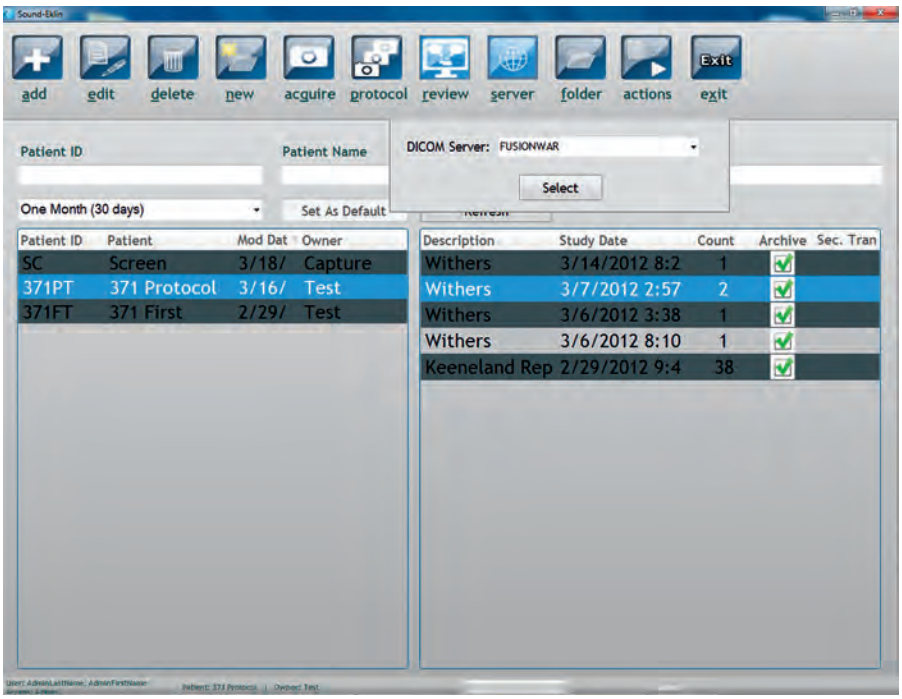
Transfer the studies from the Acquisition Station to the Storage/Review Station.

You must have your Mark®1210cw and your Storage/Review Station networked. Please contact your local IT Person for any networking needs and Sound-Eklin® tech support for configuring DICOM Server for the Mark®1210cw.

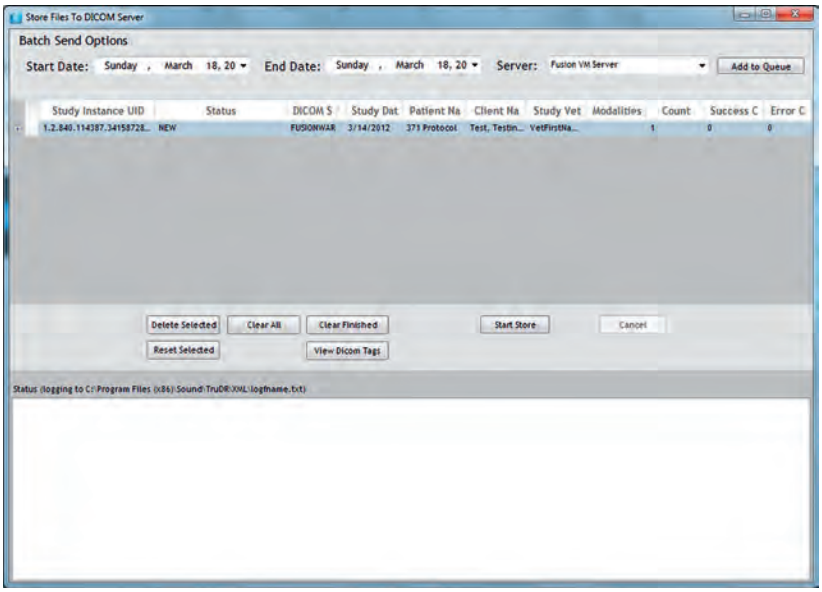
Unit cannot be connected to a network while in use. In addition you must remove network plug

1. Connect a Cat-5 Internet cable into the Internet port on the computer.
2. To bring up the Store Files to DICOM Server screen,

Touch the Server Button on the Patient Screen.

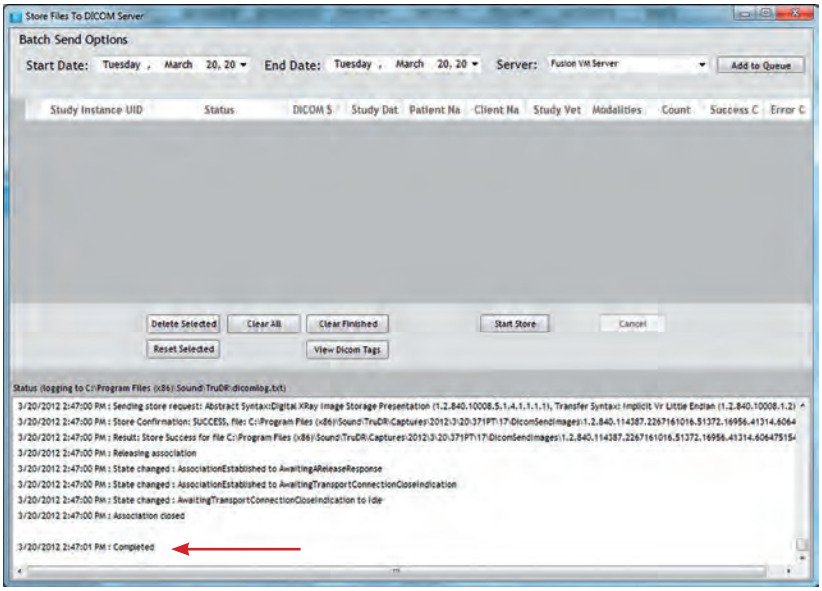


3. Touch the Start Store button to begin the DICOM image transfer to the Storage Station.



This will store all the studies that were taken since your last transfer and clear the queue. If any studies are missing, you can transfer them individually (see the following section).

4. Status box displays transfer results. When the status box states “completed”, your images have successfully transferred to the DICOM server. Touch the Red close button in the upper right corner to close the screen.

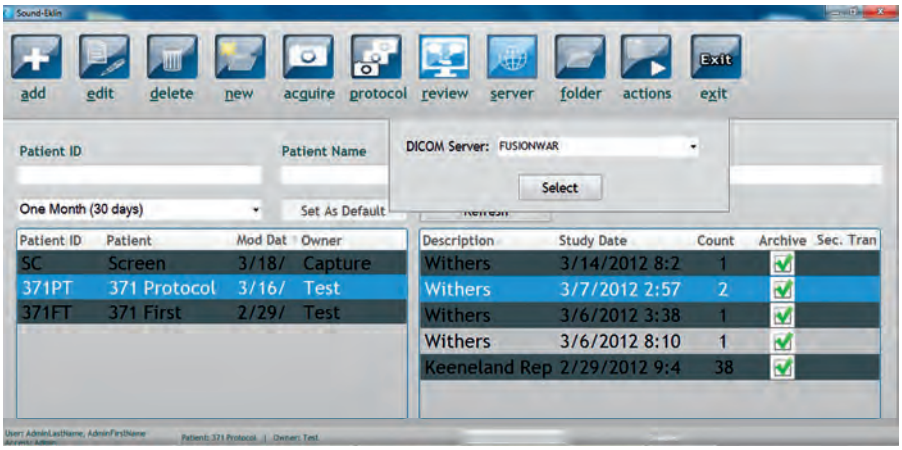


Chapter 9: Transferring Studies to the Storage Station *(continued)*

Transferring Individual Studies to the Storage Station

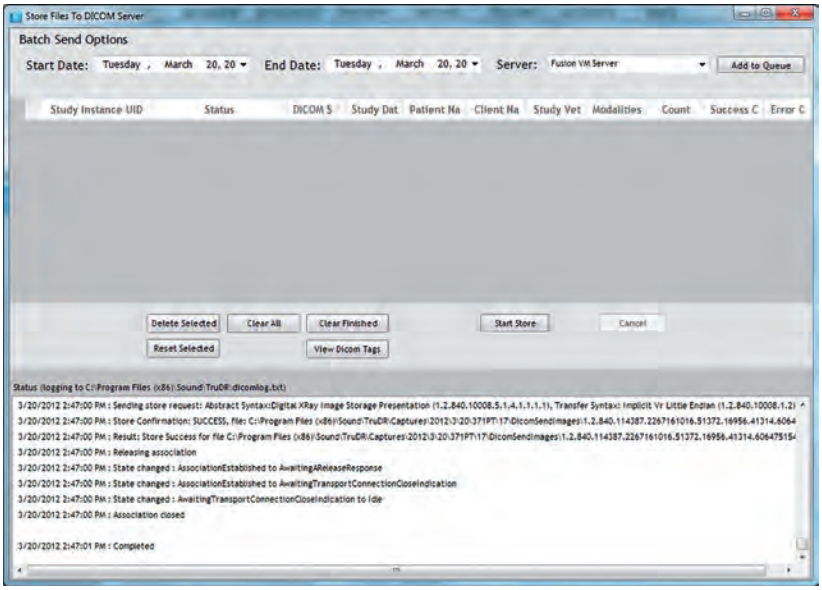
Transfer the studies from the Acquisition Station to the Storage/Review Station.

1. Search for a patient's study by entering the Patient ID, the Patient Name, or the Owner Last Name. The Patient List will automatically filter as you type.
2. Select a patient by Touching on the patient name in the Patient List field.
3. Touch the Server button.



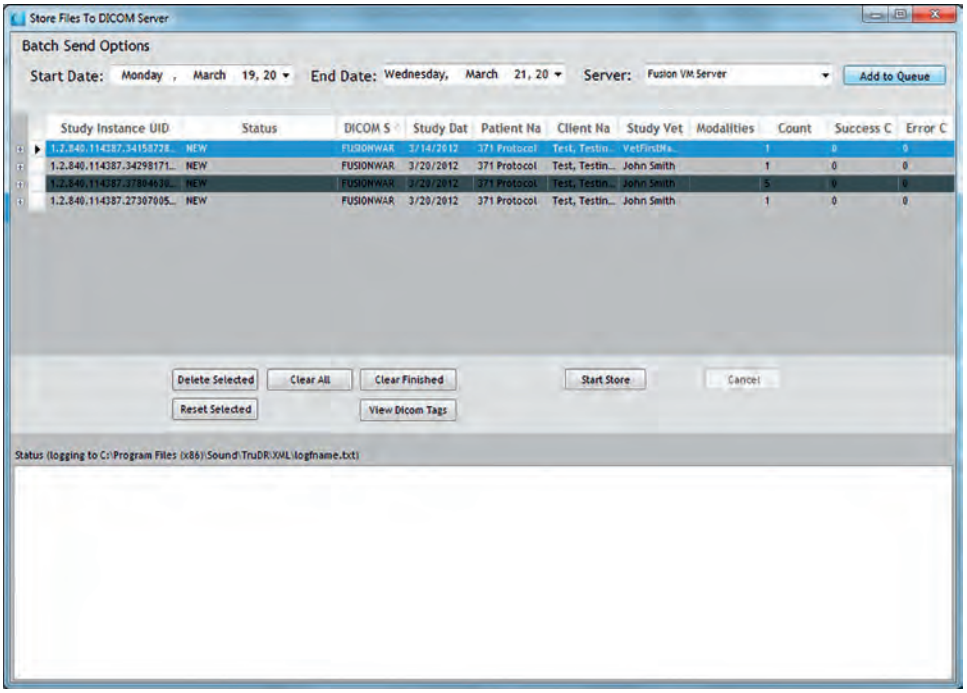
4. Touch the Start Store button to begin DICOM image transfer.

5. Status box displays transfer results. When the status box states "completed", your images have successfully transferred to the DICOM server. Touch the Red close button in the upper right corner to close the screen.



Transferring DICOM Batch to the Storage Station

1. If you wish to send a group of selected studies from a specific time frame, enter the start and end date of these studies in the display at the top of the Batch Send Options window. The DICOM image transfer will send these studies listed in the queue all at once.


Store Files To DICOM Server
Batch Send Options
Start Date: Monday , March 19, 20
End Date: Wednesday, March 21, 20
Server: Fusion VM Server
Add to Queue
Study Instance UID
Status
DICOM S
Study Dat
Patient Na
Client Na
Study Vet
Modalities
Count
Success C
Error C
1.2.840.114387.34158728... NEW FUSIONWAR 3/14/2012 371 Protocol Test, Testin... VetFirstNa... 1 0 0
1.2.840.114387.34298171... NEW FUSIONWAR 3/20/2012 371 Protocol Test, Testin... John Smith 1 0 0
1.2.840.114387.27804636... NEW FUSIONWAR 3/20/2012 371 Protocol Test, Testin... John Smith 5 0 0
1.2.840.114387.27307005... NEW FUSIONWAR 3/20/2012 371 Protocol Test, Testin... John Smith 1 0 0
Delete Selected
Clear All
Clear Finished
Start Store
Cancel
Reset Selected
View Dicom Tags
Status (logging to C:\Program Files (x86)\Sound\TruDR\XML\logfname.txt)

2. Touch the **Start Store** button to begin DICOM image transfer.

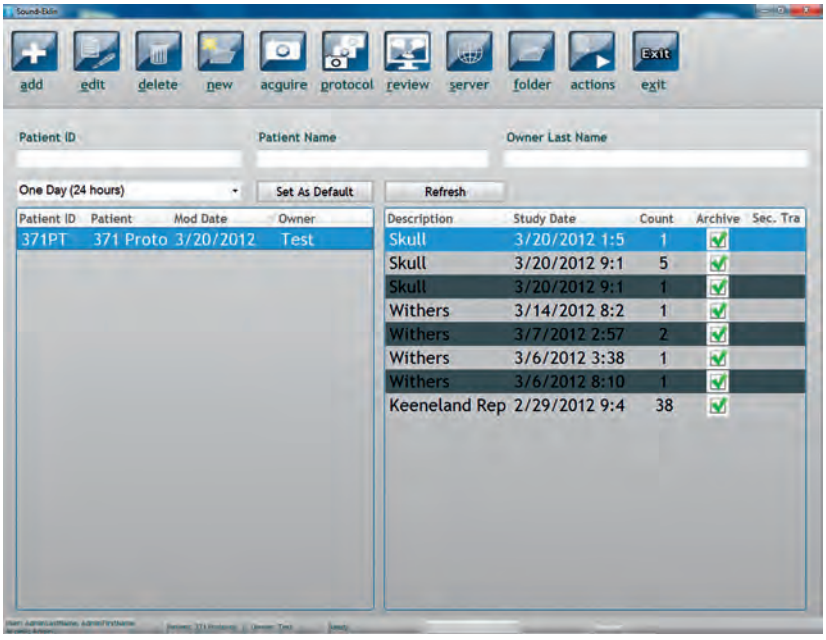
Confirm Storage of a Study

Confirm the study successfully sent to the Storage/Review Station.

1. On the Patient Screen, the Archive field will show a server name (e.g. SOUND-SERV1).
2. Hold the mouse over the server name to show a pop-up window with the transfer data.

The pop-up box displays how many images have been transferred and the date and time of the transfer. The information is color coded for easy reference. If only one study appears, it will be highlighted in blue and the color coding will not appear:
Green Box— Image transfer complete
Red Box — Image transfer failed

Notice the Secondary Transfer field. Secondary Transfer documents the number of studies sent to another PACS system besides the main archive, ie Sound-Serv2.

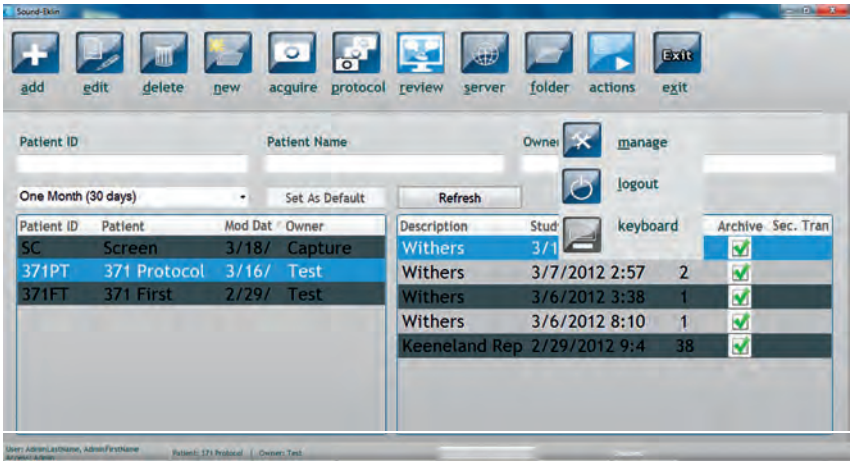


Chapter 10:
Adding and Editing a DICOM Location

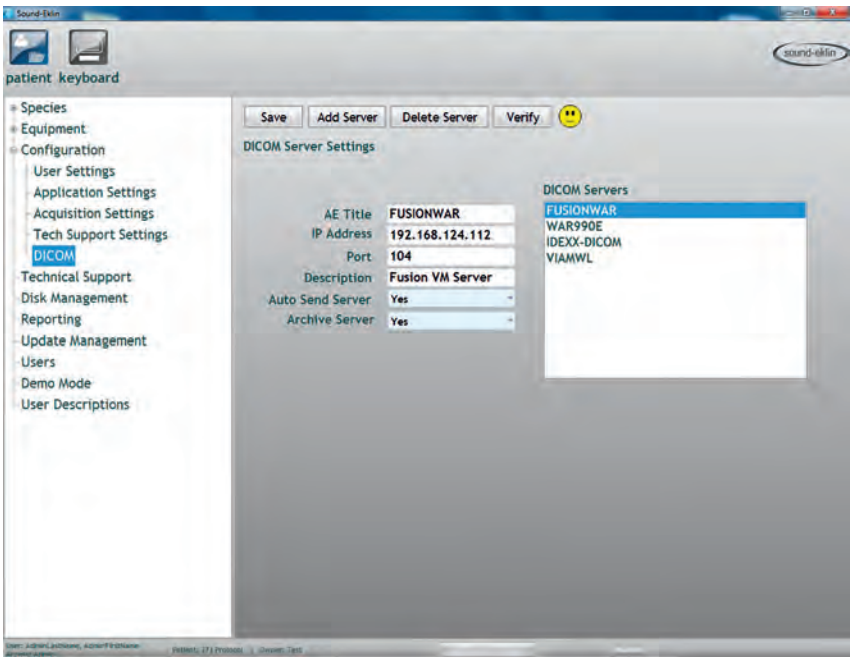
Add DICOM server locations for sending images to a Storage Station, Radiologist, etc.

1. Touch the Actions button to access the **Manage** button in the Patient Screen.

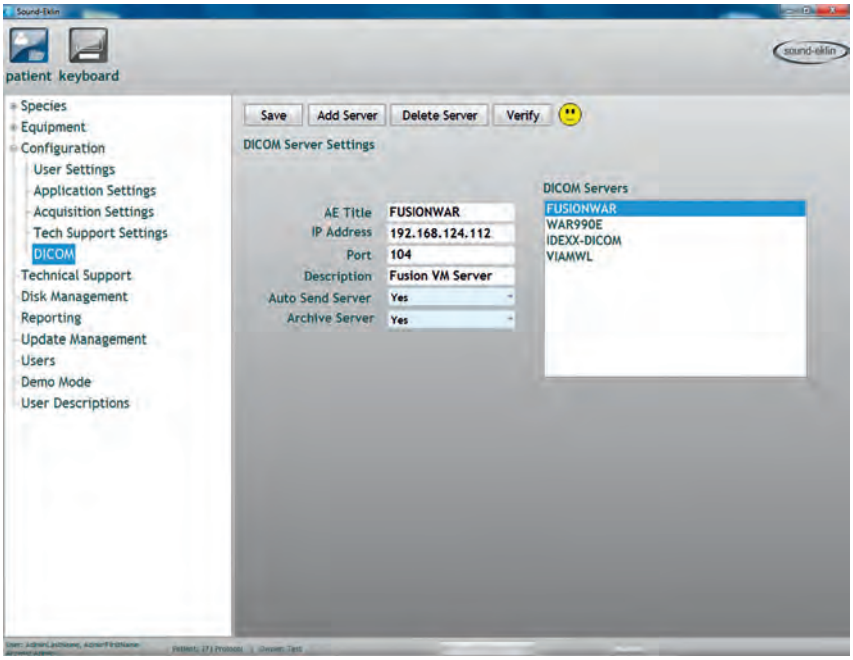
To access the Manage screen, the user needs to have Administrative rights. Changing items in the Manage Screen other than "Users" and "Protocols" may cause your system to function improperly. If you are concerned about making changes in the Manage Screen, please contact Technical Support at 1.800.268.5354.



2. **Select Configuration and then DICOM from the Option Headers on the left side of the screen.**



Chapter 10: Adding and Editing a DICOM Location *(continued)*



3. Touch the Add button [Add Server] to add a new DICOM server. Or if editing select the existing DICOM server from the DICOM Servers list on the Right.
4. Enter the **AE Title, IP Address,** and **Port** number for your DICOM server. OR if editing enter the corrected **AE Title, IP Address,** and **Port** number for your DICOM server.

Contact Sound-Eklin® Technical Support or the location you are sending the DICOM images for the appropriate DICOM provider information.

5. Select additional information by choosing Yes from the drop-down menus.

Only select the following options if you are directed to do so by a Technical Support representative:

Auto Send Server: Automatically sends images to the selected DICOM location.

Allow Worklist: Designates the DICOM location as a worklist modality.

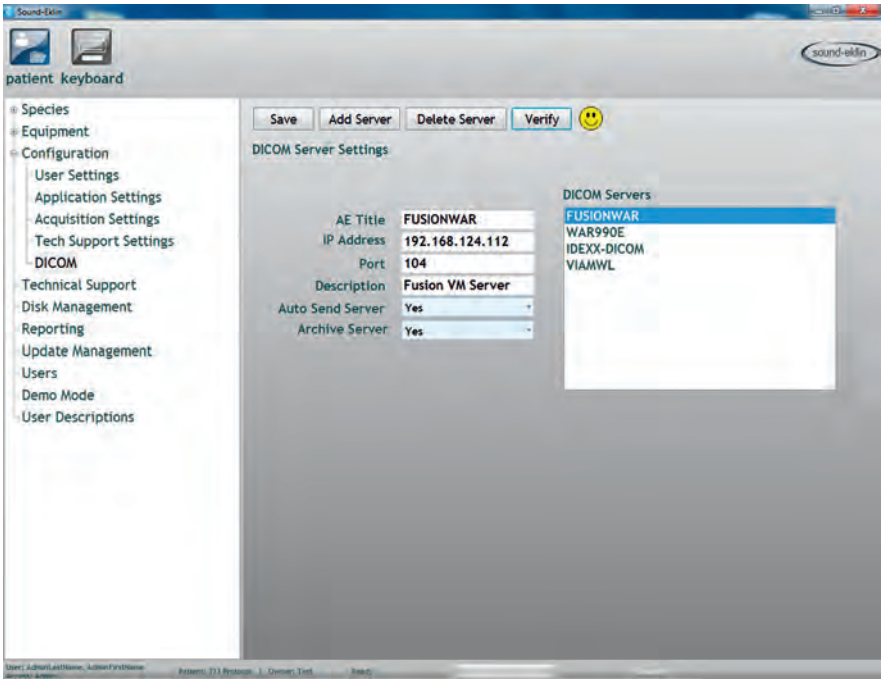
Telemedicine Server: Designates the DICOM location as a telemedicine server.

Archive Server: Designates the DICOM location as an archive server.

6. Touch the **Save** button [Save] to save the current information.

Chapter 10: Adding and Editing a DICOM Location *(continued)*

7. Touch the **Verify** button Verify to verify that you can connect to the DICOM Server.



8. A smiley face will appear when you have verified the connection to the DICOM Server.

If a frowning face appears, please contact Sound-Eklin® Technical Support (1.800.268.5354).

10. Touch the **Patient** button to return to the Patient Screen.

Appendix A:
Digital Radiography Technique Charts

Adult Equine

MinXRay HF8015, TR80, and TR90 at a distance of 26”

Adult — 1,000 lbs	kVP	Seconds	mAs
Distal Extremity (all views)	80	0.06	0.90
Radius	80	0.06	0.90
Elbow	80	0.20	3.00
Stifle: L-M	80	0.10	1.50
Stifle: CdL-CrMO	80	0.34	5.10
Stifle: CdL-CrLO	80	0.34	5.10
Stifle: Cr-Cd	80	0.34	5.10
Tibia	80	0.15	2.25
Large Adult	**kVP**	**Seconds**	**mAs**
Distal Extremity (all views)	80	0.06	0.90
Radius	80	0.08	1.20
Elbow	80	0.26	3.90
Stifle: L-M	80	0.15	2.25
Stifle: CdL-CrMO	80	0.34	5.10
Stifle: CdL-CrLO	80	0.34	5.10
Stifle: Cr-Cd	80	0.34	5.10
Tibia	80	0.15	2.25

Due to variability between x-ray generators,
optimal techniques may vary somewhat from the values printed above.

Appendix A: Digital Radiography Technique Charts *(continued)*

Juvenile Equine

MinXRay HF8015, TR80, and TR90 at a distance of 24”

< 6 month old	kVP	Seconds	mAs
Distal Extremity (all views)	80	0.04	0.60
Radius	80	0.05	0.75
Elbow	80	0.05	.75
Stifle: L-M	80	0.08	1.20
Stifle: CdL-CrMO	80	0.10	1.50
Stifle: CdL-CrLO	80	0.10	1.50
Stifle: Cr-Cd	80	0.10	1.50
Tibia	80	0.05	0.75
6-12 months old	**kVP**	**Seconds**	**mAs**
Distal Extremity (all views)	80	0.05	0.75
Radius	80	0.06	0.90
Elbow	80	0.06	0.90
Stifle: L-M	80	0.10	1.50
Stifle: CdL-CrMO	80	0.12	1.80
Stifle: CdL-CrLO	80	0.12	1.80
Stifle: Cr-Cd	80	0.15	2.25
Tibia	80	0.06	0.90

Due to variability between x-ray generators,
optimal techniques may vary somewhat from the values printed above.

Appendix A: Digital Radiography Technique Charts *(continued)*

Small Animal

MinXray 80/15 SID ~ 26IN (66CM)

Centimeters	1-10	11-15	16-25	26-30
kVp	80	80	80	**80**
seconds	0.06	0.13	0.26	0.50
mAs	~1	~2	~4	~7.5

MinXray 90/20 SID ~ 26IN (66CM)

Centimeters	1-10	11-15	16-25	26-30
kVp	80	90	90	**90**
seconds	0.06	0.06	0.10	0.20
mAs	~1	~1	~2	~4

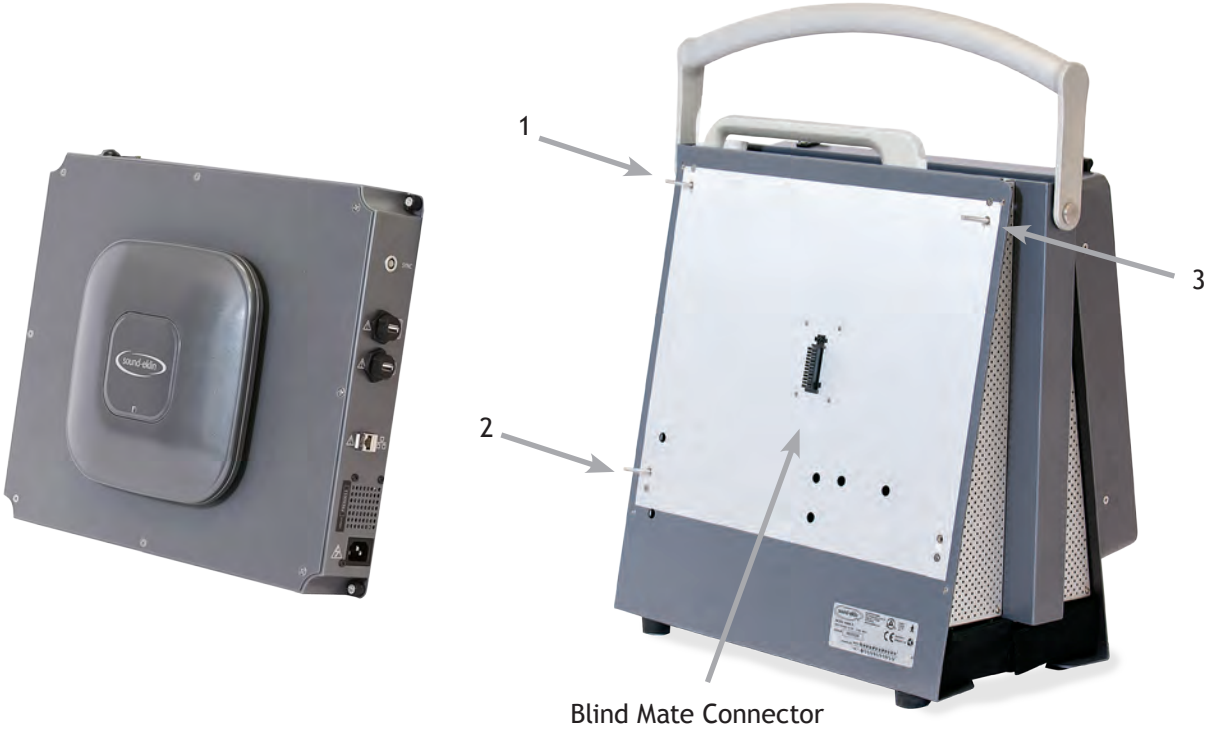
MinXray 100/30 SID ~ 26IN (66CM)

Centimeters	1-10	11-15	16-25	26-30
kVp	80	90	100	**100**
seconds	0.06	0.06	0.06	0.10
mAs	~1	~1	~1	~2

Due to variability between x-ray generators,
optimal techniques may vary somewhat from the values printed above.

Appendix B: Mark®1210cw System Field Replacement Guide

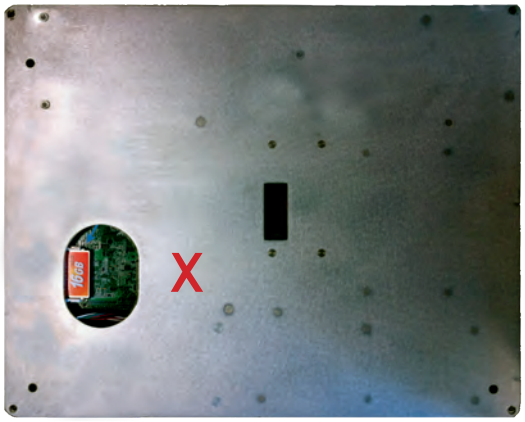
1. Using a Phillips screwdriver remove four (4) screws.
2. Box will remain on because of 3 Guide Pins. Gently slide electronics box off Guide pins, By pulling back. There are no wires to disconnect.



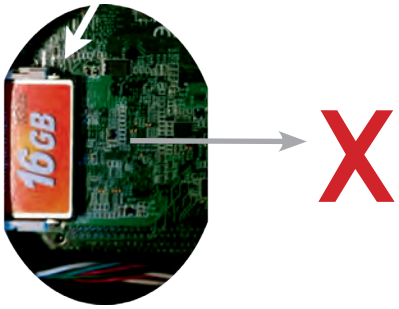
Appendix B: Mark®1210cw System Field Replacement Guide
(continued)

3. Flip electronics box over and pull out 16GB Compact Flash Card. The compact flash card will have the most recent Database file on it with all settings required to restore.

You will need to place the old Compact Flash into the new electronics box replacement.

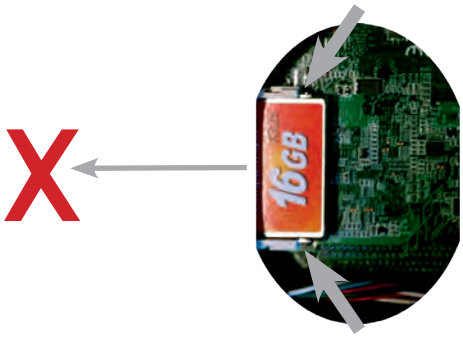


To Slide out old 16GB CF via the cut out: Gently pull left or right tab with thumb while pulling card back towards “X”.



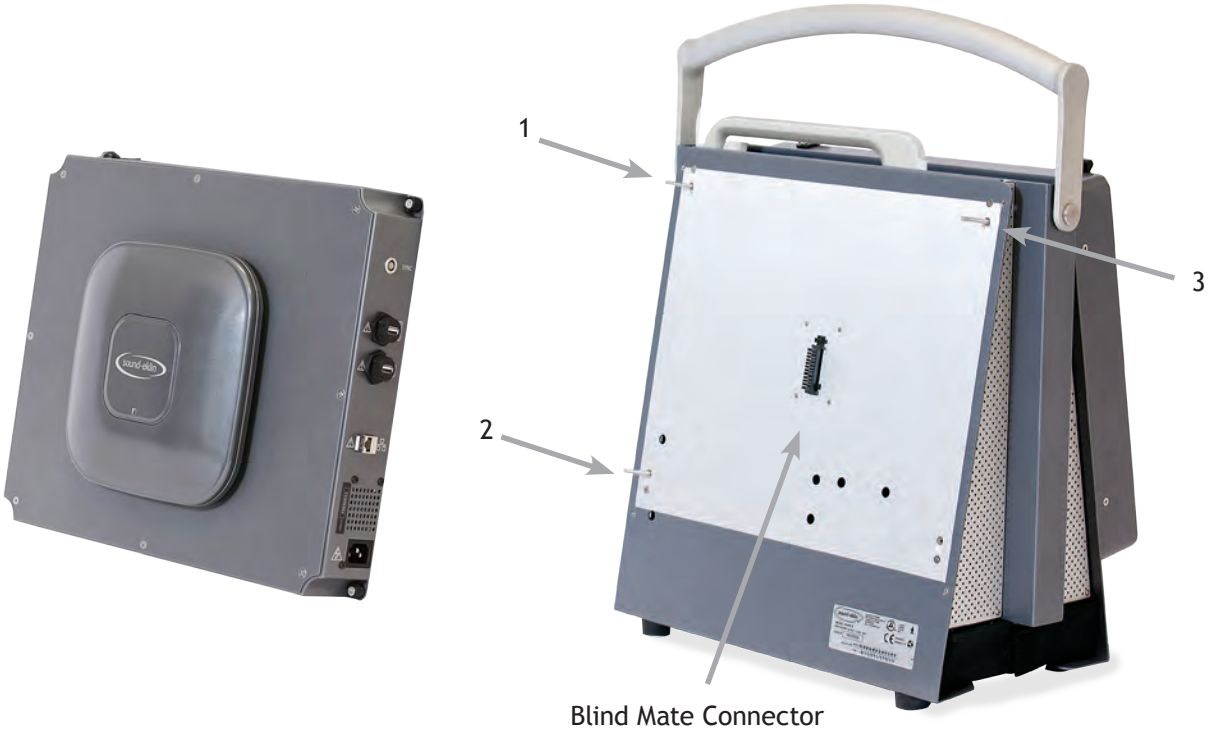
4. You will need to place the old Compact Flash into the new electronics box replacement.

To Slide in new 16GB CF via the cut out: Gently align card up with rails and push card forwards towards “X”.



Appendix B: Mark®1210cw System Field Replacement Guide
(continued)

5. After replacing CF card into new Electronics Box slide on using guide pins. The guide pins will line up the blind mate connector for you.



6. Using a Phillips screwdriver to tighten four (4) screws.

Appendix B: Mark®1210cw System Field Replacement Guide
(continued)

7. Obtain Internet Connection, Power On, then call Technical Support at 1.800.819.5538 to restore settings. Restore procedure will take roughly 20 minutes.

Appendix C: Calibration Procedure

1. Launch the TruDR application and login as Administrator (username: admin password: admin).
2. Click the **Actions** button located in the menu bar at the top of the screen.
3. Click the **Manage** button located at the top of the dropdown that appears after selecting Actions.
4. Click **Equipment** from the menu on the left side of the screen.
5. The Equipment Configuration screen will appear in the window on the right. Click the **Perform Calibration** button.
6. The Calibration Screen will load on top of the TruDR™ application. To begin the calibration, click the **Perform Gain** button. The application will acquire a series of 4 Dark images 30 seconds apart and average them to create the Offset image. After each image is acquire the Progress Box will read: Please Wait.
7. Next, you will be prompted to take acquisition 1 of 4 (20,000 level) You will acquire a series of 4 images with an average ADU value of 20,000.

A good starting technique at 30" SID is 62 kvp 1.0 mas

8. If the settings are correct you will be prompted to take image 2 of 4. If the settings are incorrect the value achieved will be briefly displayed. Adjust your mas up or down according to the prompt, and acquire another image when prompted, until all 4 images have been acquired at the 20,000 level.
9. Next, you will repeat the process at the 30,000 level. A series of 4 images will be acquired with an average ADU value of 30,000.

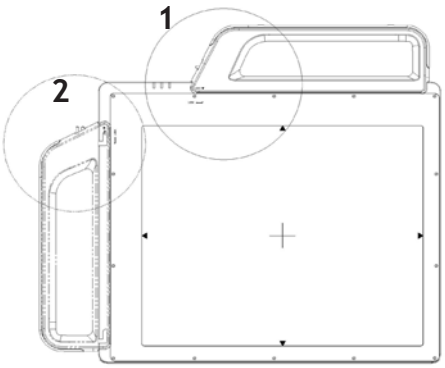
A good starting technique at 30" SID is 62 kvp 1.5 mas

10. Once the 4 images have been acquired at the 30,000 level you will be asked to acquire a series of 4 images at the 40,000 level.
11. Once all 12 gain calibration images have been acquired you will be asked to acquire a Flat Field image. Acquire this images at the same technique as the 40,000 level gain images.

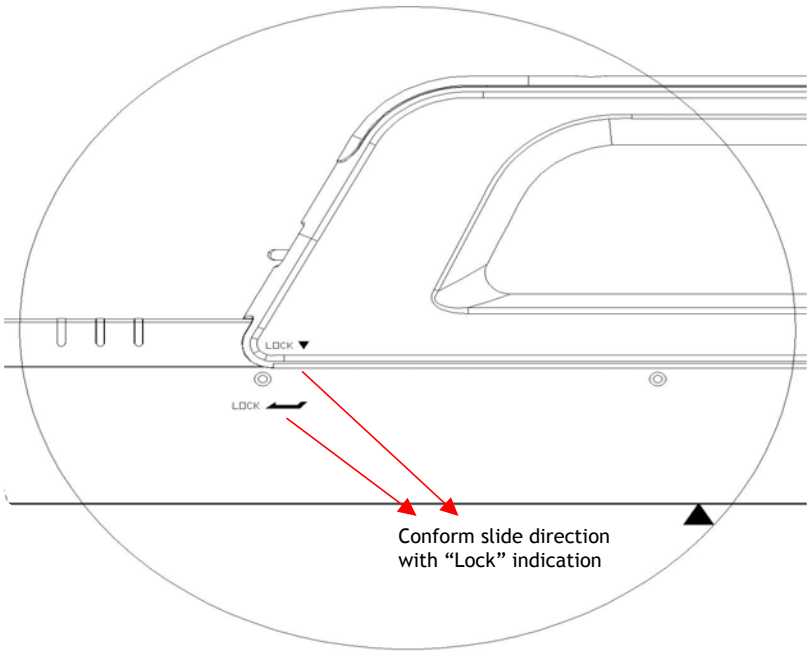
A good starting technique at 30" SID is 62 kvp 2.0 mas

12. Once the Flat Field image has been acquired, the Progress Box will display: Calibration Complete.
13. Click the **Start** button, then click **Davinci** from the Start Menu.
14. Select the B**ad Pixels Removal** tab and then click **Generate Auto BPM**.

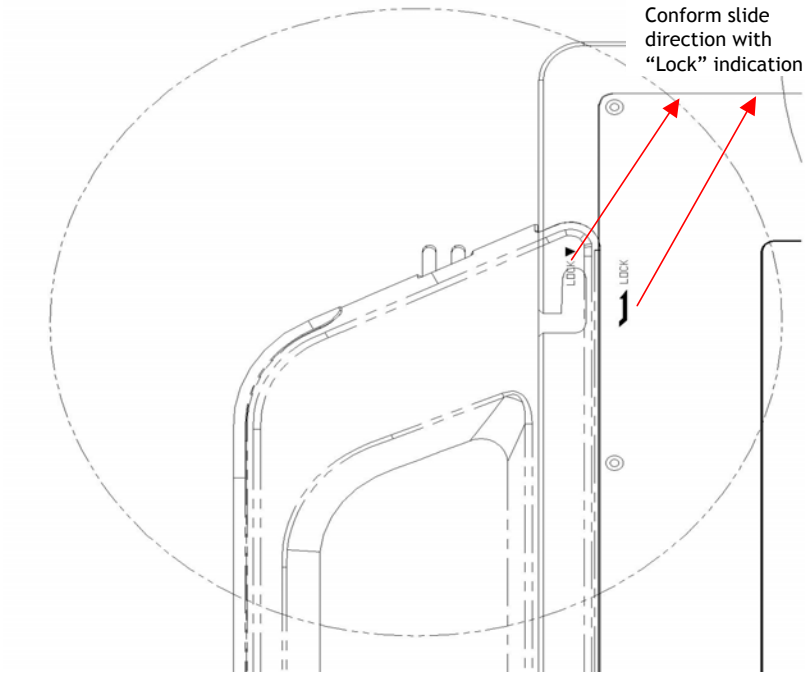
Appendix D: Assembly Instructions for Rayence 1210cw Handle



Handle Assembly 1



Handle Assembly 2



Appendix E: Wireless Rayence 1210cw Plate Functionality

1. To turn the plate ON, locate the red power button. Press and hold the power button until you see the green power light turn on.

   To turn OFF the plate, press and hold the power button until the green power light turns off.

Power Button

Power Light

2. Once the plate is turned on, power on the Mark®1210cw console. The plate will take approximately 2 minutes to link to the 1210cw console. During this time, the blue LINK light will pulse intermittently. When the plate has established a link, the blue LINK light will blink rapidly.

Blue LINK Light

3. The 1210W plate is now linked to the console and ready for use.

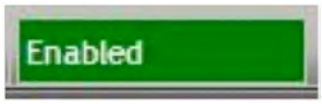
Appendix E:
Wireless Rayence 1210cw Plate Functionality *(continued)*

Signal and Battery Strength

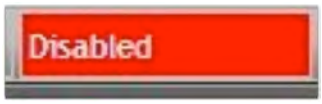
In the top right corner of the acquisition screen are two (2) icons:

The signal and battery icons indicate to the user the amount of battery that remains in the plate, as well as the signal strength of the wireless link. These icons change to 4 different values: 25%, 50%, 75%, and 100%. If these icons are blank/empty the plate is not linked.

Located at the bottom of the screen, the taskbar will display a green “Enabled” icon when the plate is linked and ready to acquire an image:

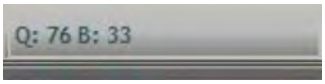


When the plate is not ready to acquire an image, the taskbar will display a red “Disabled” icon.



The plate will go “Disabled”
whenever the software is not in the acquisition screen,
even if the plate is still linked to the console)

Next to the Enabled/Disabled icon, is a more accurate display of the Signal Strength and Battery Life of the plate: Q=Signal Strength B=Battery Life

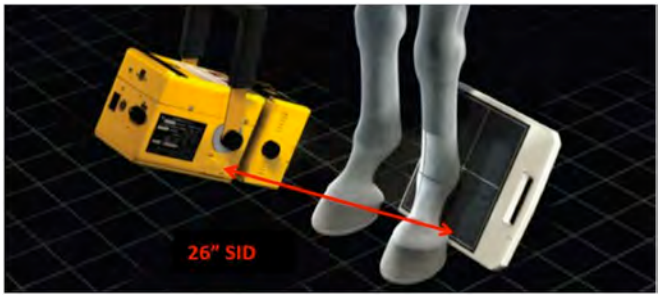


If the plate is not linked to the console, this will display: “Link Lost”

Appendix F:
Technique and Positioning Guide

Before acquiring radiographs with a Sound-Eklin® digital x-ray system, the following steps should be taken to ensure that each image acquired achieves optimal image quality.

1. Set the digital panel 26 inches (66 cm) from the tape measure on the side of the x-ray generator, perpendicular to the generator, with the beam centered on the capture area. Adjust the collimator blades so that only the capture area is exposed. This will ensure that each image is taken at almost exactly 26 inches, eliminating distance as a variable for inconsistent image quality.
2. When acquiring a radiograph, center the anatomical region of interest on the capture area of the digital panel, and position the generator so that only the capture area is exposed by the light beam.

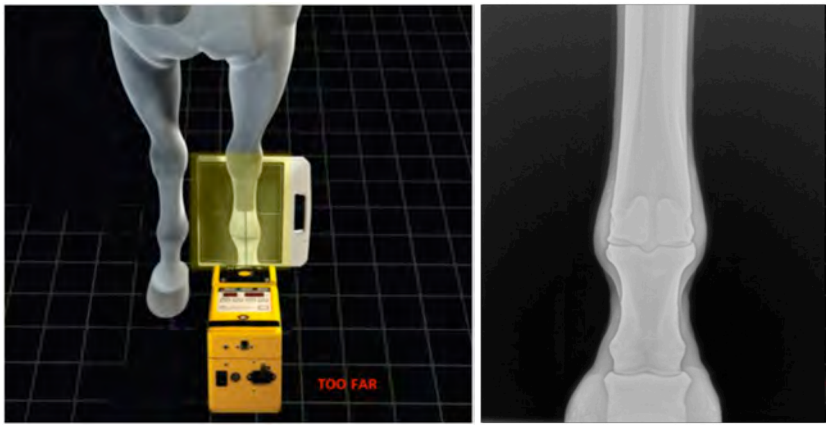


Appendix F: Technique and Positioning Guide *(continued)*

Position Distance

Too Large of a Distance

Below is an example of an image acquisition scenario demonstrating correct technique and positioning, but with distance greater than an ideal scenario:

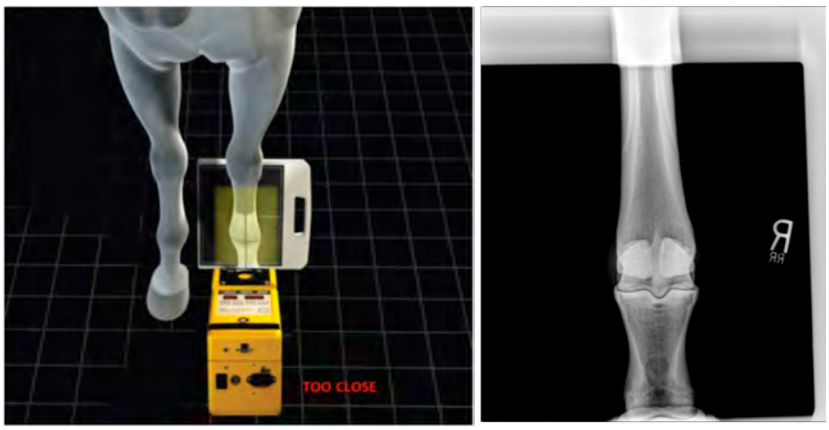


Notice that the distance from the digital panel is greater than 26” and the collimator is exposing outside of the capture area.

The end result is an underexposed image. Notice the gradient from the top of the image to the bottom. This will occur when the digital panel is tilted at an obtuse angle from the generator. In ideal conditions the digital panel is always exactly perpendicular to the generator.

Too Small of a Distance

Below is an example of an image acquisition scenario demonstrating correct technique and positioning, but with distance less than an ideal scenario:



Notice that the distance from the digital panel is less than 26” and the collimator is not exposing the entire capture area.

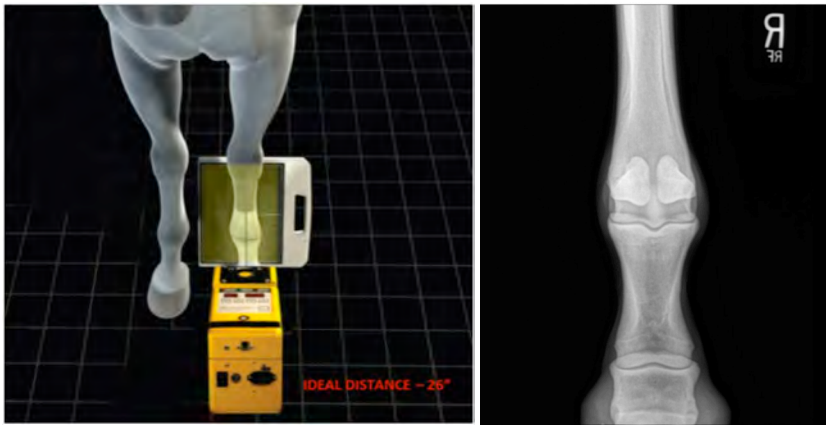
The end result is an overexposed image. Notice the lack of soft tissue around the bone. When the entire capture area is not exposed, the unexposed part of the image can cause the image processing to display a less than optimal image.

Appendix F: Technique and Positioning Guide

Position Distance *(continued)*

Ideal Technique and Distance

Below is an example of an image acquisition scenario demonstrating ideal technique, positioning, and distance:



Notice that the distance from the digital panel is 26”, and the collimator is only exposing the capture area. There is no unexposed area inside the capture area, and no area outside of the capture area is exposed.

The end result is an ideally exposed, quality image.

Appendix G: Technical Support

Shipping Address

Sound-Eklin®

6359 Paseo Del Lago

Carlsbad . California 92011

USA

Technical Support

Office hours: Weekdays 8:00 A.M. — 5:00 P.M. Pacific Time

Emergency 24-hour support is available.

Telephone: 800.268.5354, option 3

Website

www.soundeklin.com

sound-eklin®

a VCA ANTECH company

Sound-Eklin® Technical Support

6359 Paseo Del Lago
Carlsbad . California 92011 USA

toll free:	800.268.5354 option 3
phone:	760.918.9626
fax:	76.918.9620
international:	+1.760.918.9626

www.soundeklin.com

© 2013 All Rights Reserved
Sound-Eklin® — a VCA ANTECH company